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BASIC PSYCHIATRY IN MEDICAL PRACTICE

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The practice of medicine is one of the fields of human endeavor most markedly modified from time to time by the progress in basic sciences. Revolutionary changes in medicine were brought about by the development of bacteriology and sanitary engineering. That revolution preceded the active careers of the present generation of physicians; but we of this generation have witnessed and participated in a great change produced by the development of chemotherapy and the antibiotic drugs. The net results of accumulated scientific gains have been a much greater effectiveness in the treatment and prevention of acute infectious disease, and a considerable lengthening of the average span of life, with a change in the types of distress and disability for which medical aid is sought. The physician's practice, whether general or specialized, has come to include a larger and larger proportion of more chronic illness. Bit by bit, radical advances are being made in these fields also—as in the better management of diabetes and in the treatment of thyrotoxicosis. Yet there is a large and increasing proportion of those illnesses, or conditions of marginal poor health, in which modifications in the patient's way of life constitute a major concern of the physician. This requires some skill in dealing with patients as persons, yet, until recently the course of training for a career in medicine gave little or no instruction or guidance in dealing with patients as persons.

Psychiatry has special pertinence for this aspect of medical practice for three reasons:

First, because a considerable segment of the problems of chronic ill health is made up of frank mental and emotional disease—the psychoses and the neuroses. Second, in a considerable proportion of cases, emotional maladjustments and bad habits of thinking and feeling definitely participate in the production of morbid tissue pathology—the so-called psychosomatic conditions. Third, many illnesses, which are not in themselves psychotic, neurotic or psychosomatic, require for their proper management modifications in the pattern of life adjustment and modifications in patients' attitudes—a task of adaptation that may strain the personality resources of many patients, or arouse definite and obstinate noncooperation, whose management requires of the doctor some psychiatric knowledge and skill.

I wish that I, as a representative of psychiatry, could report that psychiatry, as a clinical specialty and as a basic medical science, stands ready and able to solve the practical problems raised by these three points; but the distressing fact is that we in psychiatry are only partially prepared, either to perform these tasks in a fully satisfactory manner or to teach others to do so. Let me acknowledge this state of imperfection and inadequacy promptly and frankly, to forestall misunderstanding; for my main purpose today is to discuss some of the points at which present day psychiatric knowledge and teachable skills have value and pertinence to those problems of modern medical practice, and I do wish, earnestly, to guard against appearing to claim too much for psychiatry. An appreciation of the needs for better psychiatric knowledge is, however, attracting an increasing number of able young physicians into this field of study. Some lines of potential advancement are becoming clearer. If support can be furnished on an increasing scale, progress in psychiatry will enable physicians to meet those needs more adequately.

What does psychiatry now have to offer that is significant for general medical advancement in these three fields that I have outlined? As a teacher in a medical school, I face this question primarily as a problem of medical education for those newly entering the medical profession.

How do things shape up for the successful teaching of psychiatry as a basic medical science? One could say that psychiatry is now being added as another chapter of physiology, dealing with the personality functions. Such a statement, while true, is deceptively simple. The practically useful ways of approaching the study of personality functions are very different in methodology from the rest of physiology. Personal goals and ambitions, interpersonal attitudes and sentiments are the funda-

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mentally important matters in the study of personality functions. Methodology suitable for such matters is not being taught in physiology. With due humility for methodological imperfections, we may properly consider, however, that personality functions do constitute a part of physiology, in a broad sense, and it is in this sense that I speak of psychiatry as a basic medical science.

As I see it, the preparedness of psychiatry to fulfill this new role in medical education, as a basic science of human nature, depends essentially on the validity and usefulness of that part of psychiatry which we may call "psychodynamics." The term psychodynamics in its most general meaning should perhaps include the whole body of knowledge about biological and social forces which in psychological ways influence personal behavior, but the term is usually used in a more restricted sense, with a special focus on certain intermediary psychological processes, such as interpersonal attitudes, repressed desires, and emotional conflicts.

For the sake of perspective, let us consider, even though it must be in haste, the historical development of psychodynamics within the specialty of psychiatry. For this purpose psychiatric study may be characterized at three levels: (1) descriptive, (2) epithetic, and (3) thematic.

All medical men have some acquaintance with descriptive psychiatry, which means the detailed scrutiny of individual patients for the detection of pathological items of behavior and the orderly grouping of the pathological pictures so disclosed into syndromes or disease entities. This level of psychiatric study was epitomized in the life work of Emil Kraepelin, especially in his descriptions of manic-depressive psychosis and dementia praecox.

It was at one time generally assumed that the tasks of description and classification would be the preparation for discovering the organic or toxic etiologies of the entities described. The paradigm, or pattern of thought and expectation, was provided by dementia paralytica (general paresis), which is organically meningoencephalitis, caused by the spirochete of syphilis. There has been considerable advance in the knowledge of dementia paralytica, in the certainty of its diagnosis and in the methods of treatment. The greater certainty of diagnosis of syphilitic meningoencephalitis has, however, brought with it knowledge that compels a considerable revision of the expectation that there would be found a specific organic etiology for each describable pattern of pathological behavior. The clinical picture formerly thought to be typical and characteristic of dementia paralytica—the expansive, grandiose picture—is actually manifested by fewer than half the cases. Depressive or neurasthenic patterns of reaction actually outnumber the grandiose. We now know that practically any one of the known pathological reaction patterns can be found in patients with syphilitic meningoencephalitis. The differences in the pattern of pathological personal reaction, with the same organic etiology, have been attributed to differences in personality.

As in this example, so also in many others, psychiatry has been busy with the task of distinguishing different types of personality. Morphological correlates of personality differences have been sought, with many errors and with some successes. The physical stigmas of degeneracy was one of the false leads; the pyknic-asthenic contrast in body build has been found to be a moderately useful index to differences in personality.

In clinical psychiatric practice today, the clinician customarily carries about with him a certain stock of adjectives—terms such as introvert, extravert, schizoid, syntonic, seclusive, obsessive, and paranoid, by which one can characterize personality, still within the bounds of normal diversity but predisposing to the development of fairly specific pathological reaction patterns if something happens to precipitate a psychosis or a neurosis. These adjectives for characterizing personality represent a level of psychiatric study one step higher than the mere descriptive pathological characterization of the clinical picture. It is this level of interest in personality that I have called epithetic. Now an epithet implies disapproval, and I use the term intentionally, because it has seemed to me that these characterizations of personality have very commonly been made in a spirit of some hostility or disparagement, as exemplified in the pseudoscientific epithet "psychopathic personality, S. O. B. type."

Let me hasten now to consider the next higher level of psychiatric study—the thematic level, at which one is concerned with the themes or issues with which patients are struggling. At the thematic level of study one seeks to penetrate beyond the merely descriptive formulation of the pathological pattern of reaction, even beyond the epithetical characterization of the patient's personality, and arrive at an appreciative personal understanding of the patient's reaction, as a form of human behavior pertinent to certain themes or issues. In a figurative way, it sometimes appears as if the patient who manifests a psychosis, a neurosis, or an uncooperative attitude had turned aside from the main struggle of life in an intensive preoccupation over a disturbing side issue, internalizing some conflict with others in the environment and struggling introspectively with this internalized issue or externalizing some inward moral struggle and projecting it onto others. At this thematic level of psychiatric study, one must somehow come to grips with motives and attitudes in their personal meanings for individuals, and it is this study that has stimulated the development of psychodynamics. With the growth of psychodynamics, at the thematic level of psychiatry, the narrowing course of specialist psychiatry has broadened. Psychodynamic concepts and methods of study have wide applicability in general medicine, in dealing with patients as persons, and in dealing with personal problems as factors in disability and distress.

I have wished to make it clear, by these remarks, that there need be no antagonism between those interested in psychodynamics and those interested in descriptive psychiatry, in organic determinants of psychiatric illness, or in hereditary predisposing factors. So long as a patient remains alive and struggling toward some goal, psychodynamic considerations have some pertinence. The clinical psychiatrist has to take all those aspects into consideration. Their relative importance varies with the case.

In the development of psychodynamics, sex has received a lot of attention. Sigmund Freud, in his studies

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of hysterical reactions by the methods of hypnosis and of free association, disclosed many evidences that in such illnesses repressed sexual impulses play an active, dynamic role in motivating behavior in ways previously unsuspected. He was led thereby to formulate an extraordinarily simple schema of motivational dynamics, on the assumption that sexual interest was the principal, if not the sole, motivating force. Certain elementary psychodynamic mechanisms, such as repression, displacement, projection, and rationalization, were initially worked out in terms of this libido theory. There was considerable resistance to these earlier psychodynamic formulations of Freud, in part because the exclusive emphasis on sex seemed a ludicrous oversimplification of human nature, and in part because there was a widespread attitude that sex was a rather nasty business and that the libidinal theory gave a degrading view of humanity. In the historical perspective of half a century it has become evident to nearly all, however, that Freud's observations and theories contributed a powerful impetus to the study of unconscious motivation which has been fundamental to the development of psychodynamics on a broader basis.

Freud had a talent, also, for borrowing, from the general cultural heritage, forms of expression for the dramatic presentation of his dynamic concepts. The theme of incestuous wishes was presented as the "Oedipus complex." In the deep psychoanalysis of many patients, something approximating the Oedipus complex came to light. It became so commonplace a finding that most psychoanalysts came to assume that the Oedipus complex is a childhood phase in the development of everyone. During the early period, when the emphasis was on the bluntly incestuous aspect of the Oedipus complex, many nonanalytical psychiatrists remained skeptical of its generality. As the aggressive component in human nature has received more and more attention in the study of psychodynamics, the Oedipus complex has become a more generally acceptable concept. It is a convenient term for designating an early phase of personality development in which the child feels and expresses resentment and hostility against one of the parents. Since the bringing-up of children inevitably involves many frustrations, children have occasions for developing resentments and aggressive impulses against the frustrating parent. Aggression against a parent was one of the outstanding features of the original Oedipus Rex story. Freud's choice of the Oedipus story for epitomizing incestuous wishes has served therefore as a kind of conceptual bridge between his early libido theory of psychodynamics and the later recognition of aggression and of other motivational dynamics. It is a fortunate choice of metaphor, indeed, which provides the means for its own constructive modification.

These references to the Oedipus complex point up the fact that efforts to formulate scientific hypotheses about psychodynamics turn out to have close parallels with concepts familiar in humanistic arts and letters. I presume that in the world's great storehouses of art and literature most of the themes of human aspiration and striving are represented. Much of the knowledge of human nature that has been artistically formulated exists as proverbs or aphorisms or myths, like Oedipus Rex or Narcissus, which catch one facet of human nature and highlight it. Another proverb or myth may highlight another facet of human nature, almost the exact reverse. Wisdom lies not in the proverb but in the good sense by which one can judge which proverb applies to a particular situation.

In the attempt to develop a scientific schematization of human nature that would be solid and dependable—not so shifting as proverbs or myths—the psychoanalysts have fixed upon the concept of instinct. This was doubtless one of the considerations that recommended sex as a foundation stone for theoretical psychodynamics. Sex behavior was seen to have an obvious biological necessity and seemed to lend itself fairly well to formulation as an instinct. It is of some historical importance, also, that Freud's formative years were in the post-Darwinian period, when the biological aspect of human nature was receiving intense attention. The concept of instinct provided a biological link between mankind and other animal species. Later, McDougall attempted to outline a psychodynamic scheme of human motivation and behavior in terms of some 14 instincts and their modifications, as the conceptual foundation for the social psychology of man. Social anthropologists demolished the foundations of McDougall's system by overwhelming evidence that the actual human behavior patterns are determined by culture rather than by instinct. It would, in my opinion, be a forward step if we could eliminate the word "instinct" from psychodynamic formulations, because the original hypothesis has had to be so markedly altered. Yet the basic biological orientation of psychology which was implied by the term "instinct" or "triebe," as used by Darwin, Freud, and McDougall, has helped us to escape many of the scholastic quibbles about the nature of the human mind and to direct attention to the biological functions indicated by the word "mind."

From the biological or functional view, the word "mind" appears primarily as a verb, rather than a noun. "Mind" denotes certain functional activities of an organism rather than a metaphysical entity. These functional activities are aimed toward the fulfilment of needs and have therefore a futurity-oriented meaning or purpose, although the awareness of the need may be very dim. It has been of primary importance, in the development of psychodynamics, to recognize that human life is characterized by this orientation toward the future. It is impractical for one human being to try to understand another human being in complete disregard of the purposes or aims toward which one's efforts are directed. It would also be impractical to assume that every person is fully aware of the goals toward which he exerts himself and could give an adequate account of his motivation. Much remains unconscious and becomes manifest, if at all, only by implication. The psychoanalytic method of studying the unconscious through the free-association technique has contributed a great deal toward a deeper understanding of motivation in general. Personal experience with psychoanalysis may also contribute toward the development of a given person's skill in discerning from brief contacts the motivational patterns in a patient's life. It is by no means necessary, however, for every medical man to have psychoanalytic training in order to do a decent job of sizing up the attitudes and emotional problems of his patients. Common sense and a certain practical knowledge of life can take the experienced physician a long way in the task

of comprehending patients' personal problems, once the physician has gained an appreciation of the medical importance of motivation and of the emotional problems and possible physiological disturbances involved in motivational conflicts. Even the medical student, although his direct experience of life may be somewhat limited, can bring a good deal of practical sense to the task of evaluating a patient's emotional adjustment and his patterns of motivation, once he is oriented to think seriously and professionally about the matter. Furthermore, when the student has reached the stage of clinical work, the rich case material in the hospital wards and outpatient services provides him wonderful opportunities for studying the adaptive and maladaptive behavior and attitudes of many kinds of men and women, under a variety of social pressures and personal biases.

Students usually feel somewhat awkward and insecure in making use of these opportunities to study personality. All too often they fall into the easy routine of formal history taking and formal physical examination, and get very preoccupied in the busyness of tests and special examinations. There is such an infinity of tests in these days that the student could easily devote all his time to the apparatus and technique of medicine and forget that the patient is a person. From my acquaintance with medical students, I would say, however, that many of them have genuine interest in patients as persons and have a good deal of intuitive appreciation of human nature. In submitting to the technological pressures on their time, they submit with regret. Some even persevere in their interest in persons, and some of these seek guidance from experts in psychological medicine to help them reach a better understanding of the patients. It is at this point, as I have implied before, that a knowledge of psychodynamics enables the phychiatrist to guide the student, in a really helpful way, to a working understanding of patients who are having difficulty in personal problems. Concretely, this means that the expert in psychological medicine should help the student learn to do good personal interviewing, to talk with patients in sufficient freedom to bring out the patient's attitudes and his sense of values. The student usually needs further help in making out the meaning of the patient's statements and behavior and in integrating his interview material into a formulation that may make further interviews meet the patient's personal needs.

They do need help in developing skill in interviewing. In learning about interviewing, students usually want some sort of guide or outline to habituate them to covering the "main points," and students may be helped by a temporary crutch for this purpose, but one of the principal needs later is to liberate the interview from any stereotyped constraints. Only in a fairly free-flowing interview do the unconscious attitudes of the patient get clearly manifested. The free type of interview, as contrasted with fixed pattern, also stimulates the student to bring into play his own common-sense judgment and his considerable store of intuitive understanding.

One source of grave errors and of frequent errors in the intuitive, or naive, approach to psychodynamics can be stated fairly simply. The physician or student reads himself into the patient and assumes that the patient is motivated in the same ways as he is. In many instances this leads to false interpretations and misunderstandings. If the physician or medical student did really have a thorough understanding of himself, this tendency would not be so productive of mischief, but unfortunately physicians and medical students share in the general human tendency to dramatize themselves to themselves in flattering ways and therefore commonly misconceive their own motivations. Let us call this the projective error.

The projective error contains, then, two factors: first, the error in trying to understand a diversity of patients' personalities by reference to the really rather limited range of one's own attitudes, prejudices, and conflicts; second, the misconception of oneself that is intuitively employed as a basis of reference.

The most useful general corrective to this common and grave source of error is found in the systematic study of the process of personality development. I had the opportunity during the recent war to observe the work of a number of military psychiatrists. There was, of course, considerable diversity in their practical grasp of psychodynamic considerations and therefore in their capacities for prompt psychotherapeutic assistance. One could observe a general superiority, in these respects, of the men who had had considerable training in child psychiatry. I believe that this correlation was not an accident. An understanding of the development of personality during childhood helps the physician to avoid the pitfall of expecting people to be motivated in a wholly mature pattern. This in turn helps him to be realistic, rather than irritated, when patients do not live up to fully adult expectations.

There are several ways in which one may designate the progressive steps toward maturity of personality. It is of great practical value to the physician to have some fairly definite ideas regarding these stages of immaturity. Many morbid anxiety reactions would remain quite enigmatic or would be seriously misunderstood and mistreated if the physician did not allow for the patient's emotional immaturity. A person may be intellectually or economically very successful, yet remain childishly dependent on a mother or mother substitute for maintaining emotional security. Others may continue far into adult years the strenously competitive and exhibitionistic attitude of early adolescence. If the physician, trying to understand the anxiety of a middle-aged man, fails to recognize a persisting adolescent overemphasis on prestige symbols, the meaning of an anxiety reaction may be completely missed.

The early psychonanalysts developed a set of terms for characterizing stages of psychosexual development, roughly stated as oral, anal, oedipal, phallic, and genital. These terms have not been very useful to the physician without psychoanalytic training, because the criteria depend in considerable measure on uncovering unconscious trends through the methods of free association and dream analysis. Such data when obtainable may provide a delicate index of immaturity levels, very convenient when psychoanalysts communicate case reports with each other but not always clearly intelligible to the uninitiated.

LEVELS OF IMMATURITY

For more general purposes I have found it useful to delineate a series of stages of personality development having special reference to the sense of personal respon-

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sibility in interpersonal relationships. Four levels of immaturity can be roughly blocked out and conveniently labeled infantile, childish, early adolescent, and late adolescent. The stages or levels are named in accordance with certain attitudes that characterize successive periods in the growth of a normal and eventually mature personality, but the terms and concepts are intended to be used principally for understanding persons who are chronologically and physically grown up but emotionally have remained at one of these immature levels or in their illness have returned to it.

Infantile Level.—At the infantile level, one expects from others a limitless amount of service and consideration, without any automatic feeling of reciprocal obligation. This attitude was most clearly, though paradoxically, expressed by one of my patients when she said, "I'm no baby; I know what I want; and I want what I want when I want it." The outstanding emotional need at this level is for affection or attention.

Childish Level.—At the childish level, there has developed some sense of responsibility, but it is a delegated responsibility of the kind that is completely erased by a good excuse. The alibi habit is the characteristic expression of this stage. Great circumstantiality in speech is a useful clinical clue. Persons at the childish level of immaturity expect thorough reliability in others but only formal effort, up to the "excused" level, in themselves. They may expend much more effort in framing acceptable excuses than might be required to get a job done. Obsessive scrupulosity is a substitutive way of establishing merit, rather characteristic of this level. Praise or blame are the focus of attention. The great emotional need of the childish level is for security, characteristically sought in attachment to others—older or more powerful persons who may appear reliable and interested.

Early Adolescent Level.—At the early adolescent level, exhibitionism and prestige-seeking are the outstanding manifestations of a strong push to gain personal significance, and to sustain it by repetitive demonstration. The striving for self-sufficiency requires extrafamilial supports, and those are characteristically found in idealistic hero worship and in gangs. Badges and trophies have high value as demonstrable symbols of prestige. The sense of group responsibility develops at this level, limited in range to the gang or even more limited to one's buddy, but rather fanatical in its intensity. The great emotional need at this stage is for assurance as to personal significance, rather than simply affection or security. Now personal significance can show off only in a social setting. It can never be wholly individualistic. There is therefore at this level a correlated growth of social sense expressed in personal loyalty or small group loyalty.

Late Adolescent Level.—The late adolescent level is the stage of -isms—romanticism, idealism, or cynicism, for example. The sense of social responsibility has become more generalized in the form of loyalty to a cause, as well as to a person or group. The tendency to excess is still present, as in earlier adolescence, but it is doctrinaire excess rather than physically strenuous excess. The pseudosophisticated "line" of talk, the "wise-crack," and the sophomoric savant are easily recognizable manifestations. Sexual interests are expressed in pairing off and in courtship behavior, but success in that field, or the anticipation of success, has the emotional quality of a conquest rather than of mutual devotion.

ADULT LEVEL OF MATURITY

The adult level of personal maturity is difficult to characterize, but not too difficult to recognize. It is manifested in a balanced perspective regarding oneself and one's life and work in relation to others. The mature person can examine and appreciate the views and attitudes of others without feeling threatened thereby in one's own self-assurance. The social needs for affection, security, and significance characterizing immature stages are not outgrown in the mature adult, but the means to their satisfaction have been found in a fairly wide range of personal relationships. The emotionally mature adult is not fixed in a stereotyped pattern but can handle a number of social roles and can shift for himself from one to the other role without paralyzing constraint or anxiety.

COMMENT

The foregoing brief comments on the infantile, childish, early adolescent, and late adolescent levels of personality development have been worked out clinically, and presented here, not by any means for the mere purpose of having a scale on which individual specimens can be pinned down at the appropriate level. The whole intention is to aid the physician to comprehend and formulate the motivational level of maturity of each patient, so that his remarks and his plan of management and treatment can tie in constructively with the patient's system of values.

In the strategy of psychotherapy and in the management of patients, one has to recognize the psychodynamic principle that personality growth is stepwise. If one deals with a childish personality and some progress in maturation does occur, one can expect that the characteristic themes and issues of adolescence will next arise and have to be worked through before one can expect full maturity.

A word of caution in regard to these levels of maturity. I have found by experience that young physicians, learning to study their patients in these terms, tend to slip into the use of the terms as epithets, regarding the patient as childish, or infantile, or adolescent, in a too accusatory fashion. The principal value of this aspect of attitude study is thereby ruined, for its principal value is to help the physician appreciate the patient's set of values and his preferred role in the system of interpersonal relationships.

The physician who can recognize and evaluate with reasonable correctness the personal attitudes and level of emotional maturity of his patient, and their bearing on the management of his illness, will have gained thereby a positive contribution to his competence in general medicine. This appreciation of attitudes does not exclude organic pathology, nor does it depend on the diagnosis of a functional disorder by exclusion of organic lesions. Even when the patient's attitudes are pathognomonic of one of the classical psychoneuroses, it is still important to know whether he has some organic disease. Hypochondriasis does not immunize to cancer, nor does hysteria immunize to brain tumor. Conversely, the discovery of ulcerative colitis, of mitral stenosis, of undulant

fever, or even of an obvious hernia does not of itself eliminate from medical consideration the attitudes and patterns of personality reaction which may be the factors hindering treatment, or limiting recovery, or impelling the patient toward an unnecessary and miserable second-rate invalid adjustment in life. For the diagnostician to miss an organic lesion has been, quite properly, an occasion for some professional disgrace; now, with a more widespread understanding of the emotional forces that produce ill health, with a knowledge of how to examine for pathological attitudes and reactions, and with an increased appreciation of psychotherapeutic resources, it should become a comparable professional disgrace to overlook disturbances of personality functions that may be of crucial importance in producing or prolonging ill health.

CONCLUSION AND EXTENSION

Medical practice has been greatly changed by major triumphs over infectious disease through bacteriological study, sanitary engineering, chemotherapy, and the antibiotic drugs. The span of life has been lengthened. Chronic disease and marginal conditions of persistent ill health now demand a larger share of medical attention and require from the physician greater understanding and skill in dealing with human nature. In the necessary task of aiding individual patients to adapt to stress, to modify their ways of living, and especially to resolve more effectively the internal emotional conflicts that spoil life for so many unfortunate persons, the modern physician needs something that traditional medical education and training have not provided.

Psychiatry has found some answers and has developed some methods of studying human nature that offer possibilities for physicians to work out better solutions to some of these problems.

Modern medicine has become a fearfully complicated procedure, depending, however, in the ultimate analysis, on the trained good sense of the individual practitioners, and limited by their limitations. In this paper, and in working day by day to make psychiatry more useful as a basic medical science, I have not wished to complicate medicine in any unnecessary degree, but, instead, to focus attention on the most crucial points for the application of practical psychodynamic understanding.

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PYOGENIC INFECTIONS TREATED WITH NEOMYCIN

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Neomycin, discovered by Waksman and Lechevalier [1] in 1949, is an antibiotic which is produced by a strain of Streptomycetes closely related to Streptomyces fradiae. It is a basic compound, heat stable, and freely soluble in water. It does not lose its potency in watery solution or, indeed, in any type of vehicle, which is in striking contrast to many other antibiotics which are available for the topical treatment of cutaneous pyogenic infections.

The laboratory work of Waksman and Lechevalier [1] and that of other investigators [2] indicated that neomycin is bactericidal in vitro against an unusually wide variety of both gram-negative and gram-positive organisms. Furthermore, in their original article on neomycin, Waksman and Lechevalier [1] reported that bacterial organisms did not appear to become resistant to the antibiotic, as often happens with streptomycin in particular.

Waisbren and Spink,[3] Carr and Brown,[4] Duncan and others,[5] Wolgamot and Duncan,[6] and Lazar and Fishman [7] have reported on the parenteral administration of neomycin in the treatment of various types of systemic infections, including tuberculosis and infections of the urinary tract, especially those due to Proteus and Pseudomonas.

The series of cases reported by Waisbren and Spink [3] included 63 patients. They stated that infections due to Proteus organisms and to other gram-negative bacilli were favorably affected by the antibiotic, but in summarizing their findings, they stated that, "In view of the ototoxic and nephrotoxic effects of neomycin, this drug cannot be recommended for general use." Most of their patients received 2 gm. of neomycin daily. The seven patients who had tuberculosis were not benefited by the therapy.

Carr and Brown [4] reported that partial deafness occurred in four of their six tuberculous patients who received neomycin, this complication appearing during the fourth to the sixth week of treatment. The deafness persisted without change after the discontinuation of neomycin administration. Also, they noted temporary damage of renal function in all of their six patients. On the other hand, Duncan and others [5] reported evidence of toxicity in only 1 of their 10 patients with urinary tract infections who received neomycin. This patient had impairment of hearing and an increase in blood urea nitrogen; his hearing improved after neomycin therapy was discontinued, but the blood urea nitrogen values remained high. They stated that neomycin was dramatically effective in eradicating sensitive organisms from the blood and urinary tract, and they did not observe return of the organisms after cessation of therapy. It should be noted that their patients received neomycin for only five to seven days.

With the technical assistance of Elizabeth Spoor, M.T., and Rose Marie Sautter, B.A.

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The neomycin sulfate powder and neomycin ointment "myciguent" used in this study were supplied by the Upjohn Company, Kalamazoo, Mich.

Read before the Section on Dermatology and Syphilology at the One Hundredth Annual Session of the American Medical Association, Atlantic City, June 14, 1951.

Dr. M. Allen Forbes, M.D., assisted by following some of the patients who are included in this study, and valuable advice and assistance was supplied by Frank Engley, Ph.D., Associate Professor of Bacteriology, University of Texas School of Medicine.

1. Waksman, S. A., and Lechevalier, H. A.: Neomycin, A New Antibiotic Active Against Streptomycin-Resistant Bacteria, Including Tuberculosis Organisms, Science **109**: 305 (March) 1949.

Poth and his associates [8] have reported on an extensive experience with the oral administration of neomycin for intestinal antisepsis. He used a dosage of 1 gm. of neomycin sulfate orally every four hours. After neomycin therapy, the stools became odorless, semisolid to fluid in consistency, and greenish in color. The concentration of neomycin was determined in the blood, urine, and feces after the patient had been on the antibiotic for three days. The blood levels were extremely low with a maximum of 3 γ/ml. of serum. Quantitative urine assays indicated that approximately 3% of the ingested antibiotic was excreted by the kidneys. The quantity of neomycin in the feces was so high that accurate numerical values were impossible. They concluded that neomycin alone was found to fail in only one respect in that it occasionally did not inhibit the growth of Aerobacter aerogenes. Therefore, they added phthalylsulfathiazole (sulfathalidine®) to the treatment regimen with a dosage of 1.5 gm. every 24 hours. They found that only a small amount of neomycin was absorbed from the gastrointestinal tract, and therefore they concluded that even in a person highly sensitive to neomycin, serious toxic damage would not be expected to occur.

The only report regarding the topical use of neomycin which has appeared in the literature to date is that of Kile and others [9] who stated that neomycin ointment (5 mg. per gram in a water-miscible or a grease base) was effective and well tolerated in a group of over 200 patients with various pyogenic skin infections. In this preliminary report, they came to the conclusion that the results with neomycin ointment were, in the majority of instances, superior to those obtained with preparations which they had used previously.

The study here reported concerns the evaluation of neomycin as a topical therapeutic agent in the treatment of 264 patients with various types of cutaneous pyogenic infections. After reviewing the available literature, it seemed to us that the preponderance of evidence indicated that the nephrotoxic and ototoxic properties of neomycin precluded its parenteral administration, except perhaps in extremely ill patients with systemic infections which had not responded to other therapeutic agents, and therefore only one of our patients received neomycin parenterally.

METHOD OF TREATMENT

The vast majority of the patients included in the present study were treated with (1) an ointment consisting of 5 mg. of neomycin sulphate per gram in an ointment base which is a mixture of petrolatum and lanolin ("myciguent"), or (2) an aqueous solution of neomycin sulphate with a concentration of either 1 mg. or 5 mg. per cubic centimeter, or (3) neomycin sulphate incorporated in a water-miscible base (5 mg. per cubic centimeter) was used in the treatment of 48 patients. The water-miscible base is composed of a mixture of methylparaben, propylparaben, sodium lauryl sulphate, polethylene glycol (carbowax®) 1500, cetyl alcohol, spermaceti, petrolatum, and triple-distilled water. Other vehicles which we have tried include a carboxymethylcellulose base, neobase® (a greaseless ointment base), and a bentonite lotion. In a few patients, the concentration of neomycin either in aqueous solution or in one of the lotion vehicles or in neobase® was increased to as much as 30 mg. per cubic centimeter or gram.

Patients were instructed to apply the ointment from three to five times daily. The aqueous solution was used either in the form of soaks or compresses, with instructions to carry out the treatment for one-half hour either two or three times daily. When feasible, as in the treatment of lesions of the extremities, the ointment was covered by a bandage, and in some patients before bandaging, cellophane was used to cover the involved part after the application of the ointment.

Bacterial cultures were done in almost all cases, and numerous repeat cultures during and after treatment were done in some patients. The in vitro sensitivity of the organisms to neomycin as well as to other antibiotics was determined in a representative group of patients.

RESULTS

Our results with topical neomycin therapy are summarized in Table 1. Patients who had impetigo, impetiginized dermatitis, ecthyma, acute paronychia due to bacterial infection, furunculosis, and hordeolum (sty) responded promptly and in the vast majority, the conditions cleared up within three to six days. Only seven of the 95 patients in this group failed to have a rapid and com-

TABLE 1.—*Topical Treatment with Neomycin of Cutaneous Pyogenic Infections*

Diagnosis	No. of Patients	Results				Reaction to Treatment
		Excellent	Fair	Questionable	No Effect	
Impetigo contagiosa	30	29	0	1	0	0
Impetiginized dermatitis *	48	45	0	3	0	3 †
Ecthyma	7	5	1	1	0	0
Paronychia (acute)	5	4	0	0	1	0
Furunculosis and sty	5	5	0	0	0	0
Pustular folliculitis	12	8	2	0	2	0
Cutaneous ulcers	17	9	4	3	1	0
Impetiginized atopic dermatitis	8	4	4	0	0	0
Impetiginized eczematous dermatitis	63	22	22	12	7	4 †
Otitis externa	8	7	0	1	0	0
Secondarily infected 2nd and 3rd degree burns **	23	..	..	..	..	0
Miscellaneous **	38	..	..	..	..	0

* Secondarily infected contact dermatitis, superficial fungus infections, and others.
** Statistical analysis or results not feasible. (See discussion in text.)
† Reactions not due to irritation or sensitization. (See discussion in text.)

2. Warth, P. T.; Chandler, C. A., and Bliss, E. A.: Antibacterial Action of Neomycin and Furadroxyl in Vitro and in Vivo, Bull. Johns Hopkins Hosp. **86**: 169 (March) 1950. Waksman, E. A.; Hutchison, D., and Katz, E.: Neomycin Activity upon Mycobacterium Tuberculosis and Other Mycobacteria, Am. Rev. Tuberc. **60**: 78 (July) 1949. Hobby, G. L.; Lenert, T. F., and Dougherty, N.: The Evaluation of Neomycin and Other Antimicrobial Agents of Bacterial and Fungal Origin and Substances from Higher Plants, Ann. New York Acad. Sc. **52**: 775 (Dec.) 1949.

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5. Duncan, G. G.; Clancy, C. F.; Wolgamot, J. R., and Beidleman, B.: Neomycin: Results of Clinical Use in 10 Cases, J. A. M. A. **145**: 75 (Jan. 13) 1951.

6. Wolgamot, J. R., and Duncan, G. G.: Clinical Use of Neomycin: Preliminary Report, Pennsylvania M. J. **53**: 1264 (Dec.) 1950.

7. Lazar, A. M., and Fishman, J.: Neomycin in the Treatment of Otitis Media in Infants, Eye, Ear, Nose, & Throat Month. **29**: 484 (Sept.) 1950.

8. Poth, E. J.; Fromm, S. M.; Martin, R. G., and Hsiang, C. M.: Neomycin: An Adjunct in Abdominal Surgery, South. M. J. **44**: 226 (March) 1951.

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pletely satisfactory course; Streptococcus hemolyticus was isolated in all seven patients.

It is more difficult to evaluate the efficacy of antibacterial therapy in pustular folliculitis, chronic ulcers, impetiginized atopic dermatitis, and impetiginized eczematous dermatitis. (Other diagnostic terms for impetiginized eczematous dermatitis include infectious eczematoid dermatitis, infectious eczema, and others.) In these types of pyogenic cutaneous infections, numerous other predisposing and etiological factors must be taken into consideration.

Neomycin ointment and/or neomycin in aqueous solution seemed to be particularly effective in the treatment of otitis externa, although in our group there were only eight patients with this disease.

The miscellaneous group of diseases included seborrheic blepharitis, secondarily infected neurotic excoriations, exfoliative dermatitis, pemphigus, furfuraceous impetigo, secondarily infected squamous cell carcinoma, Behçet's syndrome, bacterid of the hands and feet, perlèche, ulcers secondary to periarteritis nodosa, mycosis fungoides, Prurigo nodularis, blastomycosis, dermatitis herpetiformis, bromhidrosis, secondarily infected psoriasis, kerion, secondarily infected removal sites, and perianal cryptitis. Although our results in this group were not evaluated statistically because of the small number of cases in each diagnostic category, a few observations are in order. As would be expected, local treatment with neomycin controlled the secondary infection factor in almost all patients. The results in two patients with furfuraceous impetigo, two patients with seborrhoeic blepharitis, one patient with secondarily infected psoriasis, and five patients with secondarily infected removal sites were particularly impressive. It is interesting to note that the application of neomycin ointment in three patients with chronic paronychia due to candida albicans resulted in prompt exacerbation of the condition; the same sequence of events occurred in one patient with erosio interdigitalis blastomycetica. Our preliminary observations in this regard lead us to believe that the exacerbation of a cutaneous lesion, following the local use of neomycin, should lead one to suspect a candida infection. Also in this connection, it is noted that the one patient with cutaneous blastomycosis had a similar exacerbation following the application of neomycin.

Furthermore, we have made no attempt to subject the results with neomycin in the treatment of burns to statistical analysis because numerous other local and general therapeutic measures were used in the treatment of these patients. Our clinical experience with neomycin in the treatment of secondarily infected burns indicated that neomycin was the local treatment of choice when the secondary bacterial infection was due to either the Proteus or the Pseudomonas group. Although it seemed to be just as effective as other antibiotic agents used locally, it was difficult to demonstrate a distinct superiority in the treatment of local infection caused by the gram-positive organisms. In general, we have been impressed with the fact that many secondarily infected burns clear up regardless of local and systemic antibiotic therapy. The course of many bacterial infections complicating burns depends on the management of systemic factors, such as adequate nutrition and local cleanliness accomplished by soap and water together with appropriate débridement. Obviously, infections due to the tetanus bacillus and Clostridium perfringens must be recognized and treated appropriately. In approximately one-third of the patients with secondarily infected burns, the prolonged local application of neomycin, particularly in the form of neomycin solution as a compress, resulted in the replacement of the bacterial flora with a fungus organism, including candida albicans and Aspergillus. The fungi disappeared soon after the neomycin therapy was discontinued, and we did not note any apparent delay in epithelization in any of these patients.

After experimenting with various types of vehicles and varying concentrations of neomycin, we reached the conclusion that the two preferable methods of local application were the following:

1. Neomycin sulfate (5 mg. per gram) in a petrolatum-lanolin base.

2. Neomycin sulfate (1 to 5 mg. per cubic centimeter) in aqueous solution as a compress or soak. We have the impression that 1 mg. of neomycin per cubic centimeter of water is just about as effective as 5 mg. per cubic centimeter, although we cannot be absolutely certain of this.

We were convinced that neomycin incorporated in the water-miscible base which was used was somewhat less effective than neomycin incorporated in the petrolatum-lanolin base.

REACTIONS TO TREATMENT

We did not observe a single instance of allergic sensitivity and/or primary irritant reaction to neomycin in this series of 264 patients. However, two of the patients were sensitive to the lanolin component of the ointment base. A few patients complained of burning on the application of the water-miscible ointment base, especially if there was considerable denudation of the skin. Concentrations of 5 mg. or more of neomycin per cubic centimeter of water seemed to have a considerable drying effect, but the patients did not complain of burning.

In Table 1, we have listed seven patients who had reactions to treatment. In all of these patients this reaction was represented by the development of localized cutaneous moniliasis at the site of application. Candida albicans was cultured from all patients, and the condition cleared up promptly and completely following the discontinuation of neomycin therapy and the use of Castellani's paint, 3% iodochlorhydroxyquin (vioform*) ointment, or gentian violet. Patch test reactions to neomycin were completely negative in all cases.

Blood serum levels of neomycin were determined in 16 patients after neomycin ointment and/or neomycin in aqueous solution had been applied to extensive denuded surfaces for at least one week. Evidence of systemic absorption of neomycin was present in only two of these patients, and in both patients the level was less than 1 γ per cubic centimeter of serum. Neomycin compresses had been applied to both of these patients on a denuded surface covering about 20% of the body which resulted from second and third degree burns.

BACTERIOLOGY

As stated previously, bacterial cultures were done in almost all patients, and numerous repeat cultures were done in many; the total number of cultures was approxi-

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mately 450. Space does not permit a complete recapitulation of the results. In impetigo, impetiginized dermatitis, ecthyma, paronychia, furunculosis, and sty, the organisms which were isolated included hemolytic Staph. aureus, nonhemolytic Staph. aureus, hemolytic Streptococcus, nonhemolytic Streptococcus, hemolytic Staph. albus, nonhemolytic Staph. albus, Proteus group, Pseudomonas group, Alcaligenes fecalis, Aerobacter aerogenes, and Escherichia coli. One or more types of staphylococci were isolated in approximately 80% of this group of patients, and hemolytic Streptococcus was isolated in approximately 30%, whereas Proteus and Pseudomonas were isolated in only 5%.

In the group of patients with impetiginized eczematous dermatitis, the bacterial flora was quite similar except that hemolytic Streptococcus, Proteus, and Pseudomonas were isolated in a slightly higher percentage of patients. Hemolytic Staph. aureus was the causative organism in all patients with paronychia except one; hemolytic Streptococcus was isolated in this one patient, and the lesion did not satisfactorily respond to therapy with neomycin ointment.

TABLE 2.—*In Vitro Sensitivity Tests—Hemolytic Staphylococcus Aureus**

	0.4 or Less	2 or Less	5 or Less	10 or Less	25 or Less	50 or Less	More Than 50
Neomycin	63	71	74	0	0	0	0
Aureomycin	35	53	54	62	64	66	—
Terramycin	36	46	49	56	59	60	3
Chloramphenicol	0	24	55	56	61	64	0
Penicillin	48	0	0	0	0	0	0
Bacitracin	0	2	2	23	40	41	0

* Sensitivity expressed in micrograms of antibiotic per cubic centimeter.

Analysis of our results with neomycin therapy in correlation with the cultural findings makes it possible to make the following statements:

1. If any type of Staphylococcus is the predominant organism which is found on culture of the lesion, and if bacterial infection is the important factor, one may expect a prompt, completely satisfactory response following the local application of neomycin.

2. If hemolytic Streptococcus is the predominant causative organism, the results with neomycin therapy are less predictable and, in general, less favorable than those in infections due to staphylococci. The seven patients with impetigo, impetiginized dermatitis, ecthyma, and paronychia, who did not have a completely satisfactory course following neomycin therapy, had infections which were due to hemolytic Streptococcus. On the other hand, 38 other patients in this group with infections due to hemolytic Streptococcus had an entirely satisfactory response following neomycin therapy. It is more difficult to correlate the therapeutic results with the cultural findings in the case of patients with impetiginized atopic dermatitis and eczematous dermatitis due to hemolytic Streptococcus. Neomycin was more effective than other antibiotics used previously in many of our patients with impetiginized eczematous dermatitis, but the reverse was true in other patients. In this group of patients in particular, in vitro sensitivity tests of the predominant bacterial organisms to the available antibiotics are absolutely essential for selection of the therapeutic agent which is apt to be more effective.

3. Our results indicate quite clearly that neomycin is the antibiotic of choice (we have had no experience with polymyxin) for the treatment of patients with infections due to the Pseudomonas and Proteus groups.

4. Our experience with infections due to Alcaligenes fecalis, Aerobacter aerogenes, and Esch. coli is too limited for any definite conclusion, but, in general, neomycin seems to be more effective in this group of infections than other available antibiotics.

IN VITRO SENSITIVITY TESTS

In vitro sensitivity tests to neomycin, using the standard multiple tube method, were done for 74 strains of hemolytic Staph. aureus, 27 strains of hemolytic Staph. albus, 43 strains of hemolytic Streptococcus, 13 strains of Pseudomonas, and 20 strains of Proteus. The results of these tests are recorded in Tables 2, 3, 4, 5, and 6. In addition, in vitro sensitivity tests to aureomycin, terramycin, chloramphenicol (chloromycetin®), penicillin, and bacitracin were done in a smaller group of cases, and they are available in the tables for comparative purposes.

TABLE 3.—*In Vitro Sensitivity Tests—Hemolytic Staphylococcus Albus**

	0.4 or Less	2 or Less	5 or Less	10 or Less	25 or Less	50 or Less	More Than 50
Neomycin	27	0	0	0	0	0	0
Aureomycin	0	3	4	0	0	0	0
Terramycin	0	2	3	3	4	0	0
Chloramphenicol	0	2	3	3	3	4	0
Penicillin	0	0	0	0	0	0	0
Bacitracin	0	0	0	0	0	0	0

* Sensitivity expressed in micrograms of antibiotic per cubic centimeter.

TABLE 4.—*In Vitro Sensitivity Tests—Streptococcus Hemolyticus**

	0.4 or Less	2 or Less	5 or Less	10 or Less	25 or Less	50 or Less	More Than 50
Neomycin	3	9	19	37	42	43	0
Aureomycin	8	12	14	14	17	0	0
Terramycin	13	18	25	30	31	32	0
Chloramphenicol	5	14	23	24	25	0	0
Penicillin	15	17	0	0	0	0	0
Bacitracin	6	12	13	0	0	0	0

* Sensitivity expressed in micrograms of antibiotic per cubic centimeter.

TABLE 5.—*In Vitro Sensitivity Tests—Pseudomonas**

	0.4 or Less	2 or Less	5 or Less	10 or Less	25 or Less	50 or Less	More Than 50
Neomycin	0	4	8	13	0	0	0
Aureomycin	0	0	0	2	8	9	1
Terramycin	0	0	4	5	7	0	0
Chloramphenicol	0	0	0	0	5	7	0
Penicillin	0	0	0	0	0	0	4
Bacitracin	0	0	0	0	0	0	5

* Sensitivity expressed in micrograms of antibiotic per cubic centimeter.

TABLE 6.—*In Vitro Sensitivity Tests—Bacillus Proteus**

	0.4 or Less	2 or Less	5 or Less	10 or Less	25 or Less	50 or Less	More Than 50
Neomycin	0	1	15	17	19	20	0
Aureomycin	0	0	0	0	0	1	7
Terramycin	0	0	0	0	0	1	6
Chloramphenicol	0	0	1	6	7	0	0
Penicillin	0	1	2	6	0	0	0
Bacitracin	0	0	0	0	0	0	5

* Sensitivity expressed in micrograms of antibiotic per cubic centimeter.

These results are self-explanatory. They indicate quite clearly that in this regard, neomycin is superior to the other antibiotics which were tested except for hemolytic Streptococci. The sensitivity tests indicated that hemolytic

streptococci isolated from patients with cutaneous pyogenic infections were more sensitive to bacitracin, aureomycin, terramycin, and chloramphenicol than to neomycin.

These studies are in accord with those which have been reported by other observers in that neomycin [10] in vitro is bactericidal for a wide variety of both gram-negative and gram-positive organisms.

Residual bacterial counts, using the technique of Spicer,[11] were done in many of these in vitro sensitivity tests. In this regard, the difference between neomycin and the other antibiotics which were tested was striking. In the case of neomycin, the residual counts were almost always zero or only a few organisms; in contrast, the residual counts which were recorded with aureomycin, terramycin, chloramphenicol, and bacitracin were seldom recorded as zero, and in most cases they were very high.

On the basis of our laboratory work, it seems justifiable to conclude that except in hemolytic Streptococcus infections, neomycin is the antibiotic of choice now available if one considers only the in vitro sensitivity tests of bacterial organisms isolated from a representative group of pyogenic cutaneous infections; furthermore, more than 50% of the strains of hemolytic strepticocci were sensitive to neomycin in a concentration within the therapeutic range.

COMMENT

In the past two years, in addition to the continued use of penicillin parenterally in selected cases, our experience with other antibiotics in the treatment of pyogenic cutaneous diseases includes the use of bacitracin ointment, aureomycin ointment, chloramphenicol, aureomycin, and terramycin. We are in agreement with the numerous investigators [12] who have reported on the efficacy of bacitracin ointment and aureomycin ointment in the treatment of pyogenic cutaneous infections. These preparations effect prompt clinical cure in a high percentage of pyogenic cutaneous infections, especially impetigo and impetiginized dermatitis. However, in addition to its therapeutic effectiveness, the choice of an antibiotic for topical treatment depends on factors such as patient acceptance, stability, and especially its sensitizing and/or irritant properties. In this regard, neomycin has certain advantages which are of practical importance. It is unusually stable, freely soluble in water, colorless, and thus far the incidence of sensitization reactions which has been recorded is extremely low. In experiments which will be reported later, we have found neomycin to be unusually nontoxic for epithelial cells growing in tissue culture. In comparison, aureomycin, terramycin, chloramphenicol, and bacitracin are more toxic for epithelial cells in tissue culture.

The fact that we have observed seven patients in whom localized cutaneous moniliasis developed at the site of application seems significant and of practical importance. In the first place, neomycin should not be used locally if the diagnosis of cutaneous moniliasis is suspected. Secondly, if a cutaneous lesion improves initially following the application of neomycin and then spontaneously becomes exacerbated, one must consider the possibility of a complicating monilial infection. It is probable that this sequence of events occurs only with prolonged use of the antibiotic. We have the impression that it is more apt to occur as a complication of neomycin therapy only because neomycin is more effective in sterilizing the area which is under treatment. Experiments involving the incorporation of neomycin in fungus culture medium do not indicate that neomycin enhances the growth of fungi.

We have observed patients with impetiginized eczematous dermatitis in whom hemolytic Streptococcus has been isolated who have responded more favorably to neomycin than to other antibiotics. However, we are of the opinion that neomycin is less effective in the majority of acute noneczematized cutaneous hemolytic Streptococcal infections than are bacitracin ointment and aureomycin ointment, particularly the latter.

If one considers the entire bacterial flora present in the case of cutaneous pyogenic infections, neomycin seems to have a distinct advantage over other available antibiotics because it is also effective against gram-negative bacilli, and it is unusually effective for almost all strains of staphylococci.

One year's experience with any new therapeutic agent should be considered as a preliminary evaluation because it is well known that the incidence of sensitization reactions tends to increase as more experience with the therapeutic agent is accumulated. However, we are impressed with the fact that we encountered no sensitization reactions in the 63 patients who had impetiginized eczematous dermatitis. It is in this group that one expects to see sensitization reactions. The average duration of the disease in these 63 patients was 11 months, and one or more antibiotics had been used previously in 37 of these patients; 10 patients had been found to be sensitive to one or more other antibiotics. The average duration of therapy was 26 days in the patients with impetiginized eczematous dermatitis, which should be sufficient time for sensitization to develop. Furthermore, over a period of several months, repeated courses of topical neomycin therapy were administered in 12 of these patients.

It seems obvious that it would be desirable to incorporate another antibiotic with neomycin in an effort to improve its antibacterial range with respect to hemolytic Streptococcus. Furthermore, it might be well to combine neomycin and a fungicide in order to prevent the development of localized cutaneous moniliasis which seems to occur on prolonged topical application of the antibiotic. Work is in progress along these lines.

SUMMARY AND CONCLUSIONS

1. Our experience with the topical use of neomycin in the treatment of cutaneous pyogenic infections is reported; a total of 264 patients is included in this series.

2. Our results indicate that the preferable methods of local application of the antibiotic include an ointment containing 5 mg. per gram in a petrolatum-lanolin base

10. Waksman and Lechevalier.[1] Footnote 2.

11. Spicer, S.: Bacteriologic Studies of the Newer Antibiotics: Effect of Combined Drugs on Microorganisms, J. Lab. & Clin. Med. **36**: 183 (Aug.) 1950.

12. Miller, J. L.; Slatkin, M. H., and Johnson, B. A.: Evaluation of Bacitracin in Local Treatment of Pyogenic Infections, Arch. Dermat. & Syph. **60**: 106 (July) 1949. Sawicky, H. H.; Pascher, F.; Frank, L., and Rosenberg, B.: Therapeutic Assays of Skin and Cancer Unit of New York University Hospital: Aureomycin Hydrochloride Ointment, J. Invest. Dermat. **15**: 339 (Oct.) 1950.

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("myciguent") and an aqueous solution of neomycin sulfate containing 1 to 5 mg. per cubic centimeter, used as a compress, soak, or as ear drops.

3. In vitro sensitivity tests reveal that neomycin has an unusually wide antibacterial range, including practically all of the bacterial organisms which are encountered in skin infections.

4. The in vitro tests indicated that neomycin is superior to the other antibiotics which were tested in respect to hemolytic Staphylococcus aureus, hemolytic Staph. albus, Pseudomonas, and Proteus, but its in vitro activity in regard to hemolytic Streptococcus is exceeded by bacitracin, aureomycin, terramycin, and chloramphenicol.

5. Excellent results with the topical application of neomycin were recorded in 88 of 95 patients with impetigo, impetiginized dermatitis, ecthyma, paronychia, and furunculosis.

6. Neomycin is an effective therapeutic agent for the treatment of the bacterial factor in a significant percentage of patients with impetiginized eczematous dermatitis.

7. The results which were obtained in a small series of patients with otitis externa were particularly impressive.

8. Localized cutaneous moniliasis developed in seven patients after prolonged local application of neomycin. This complication cleared up promptly after neomycin therapy was discontinued. The significance of this sequence of events is discussed.

9. No sensitization and/or primary irritant reactions to neomycin were noted in this series of patients, unless it is assumed that some of the patients in whom localized cutaneous moniliasis developed actually had a sensitization reaction; all patch tests were negative.

10. The modern treatment of cutaneous pyogenic infections depends on the identification of the causative organisms with in vitro sensitivity tests of the bacterial organisms to the antibiotics that are available in order that the therapeutic agent of choice for the specific patient can be selected.

11. The topical use of neomycin seems to be a most important addition to our therapeutic armamentarium. On the basis of our experience to date, we feel that it is probably the local treatment of choice in the management of cutaneous pyogenic infections except in the case of some infections due to hemolytic Streptococcus. However, additional experience must be accumulated before determining its final place in our therapeutic armamentarium.

927 Strand St.

USE OF NEOMYCIN IN DERMATOLOGY

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Neomycin, an antibiotic derived from Streptomyces fradiae, was discovered by Waksman and his co-workers in 1949.[1] It differs chemically and biologically from streptomycin and streptothricin.[2]

Studies on the spectra of bacteria affected by neomycin reveal the drug to be bactericidal in vitro [3] against a wide variety of gram-negative and gram-positive organisms,[4] including some that are streptomycin-resistant. Resistance to neomycin develops in the same pattern as resistance to penicillin.[5] Thus resistant strains are less apt to develop to neomycin than to streptomycin. There are indications, however, that resistance to neomycin may develop in Bacillus proteus, in B. pyocyaneus, and in some hemolytic streptococci.

Early in vivo studies showed neomycin to be relatively nontoxic.[6] It may, however, cause kidney and eighth cranial nerve damage,[7] particularly when kidney function is impaired. It is the purpose of this study to evaluate neomycin in dermatological therapy, observing its sensitizing capacity as well as its therapeutic effectiveness.

A preliminary report on the topical use of neomycin ointments has been published.[8]

MATERIALS AND TECHNIQUE

The ointments used in this study contained 5 mg. (1,000 units) of neomycin (supplied by the Upjohn Company, Kalamazoo, Mich.) per gram. Two ointment bases were used: one, water-miscible; the other, greasy. The latter was a mineral oil, wool fat, and petrolatum mixture. Since neomycin is a relatively stable material, the preparations were stored at room temperature.

A variety of dermatoses was included in this study, but primary or secondary infection was the main reason for using neomycin. Appraisal of results was based on the response of these infections to treatment.

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Drs. A. L. Welsh and G. D. McAfee aided in observing some of the patients in this study.

Read before the Section on Dermatology and Syphilology at the One Hundredth Annual Session of the American Medical Association, Atlantic City, June 14, 1951.

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4. Waisbren and Spink.[3b] (*a*) Duncan, G. G.; Clancy, C. F., and Hudson, J. M.: Effectiveness of Neomycin against Pathogenic Organisms Resistant to Other Antibiotic Agents, Tr. Coll. Physicians Philadelphia **17**: 141 (Feb.) 1950. (*b*) Waksman, S. A.; Lechevalier, H. A., and Harris, D. A.: Symposium on Antibiotics: Neomycin—Production and Antibiotic Properties, J. Clin. Invest. **28**: 934 (Sept., pt. 1) 1949. (*c*) Waksman, S. A.; Katz, E., and Lechevalier, H.: Antimicrobial Properties of Neomycin, J. Lab. & Clin. Med. **36**: 93 (July) 1950. (*d*) Waksman, S. A.; Hutchinson, D., and Katz, E.: Neomycin Activity Upon Mycobacterium Tuberculosis and Other Mycobacteria, Am. Rev. Tuberc. **60**: 78 (July) 1949. (*e*) Warth, P. T.; Chandler, C. A., and Bliss, E. A.: Antibacterial Action of Neomycin and Furadroxyl in Vitro and in Vivo, Bull. Johns Hopkins Hosp. **86**: 169 (March) 1950. (*f*) Kadison, E. R.; Volini, I. F.; Hoffman, S. J., and Felsenfeld, O.: Neomycin Therapy: Its Use in Virus Pneumonia, Tuberculosis and Diseases Caused by Gram-Negative Bacteria, J. A. M. A. **145**: 1307 (April 28) 1951.

The large group termed "prophylaxis" were patients on whom physical agents such as irradiation, freezing, or fulguration were used, and on whom the ointments were employed to prevent infection, or for lubrication. These studies are of value only for assessing possible irritation.

Patients with stasis ulcers, and atopic or seborrheic dermatitis are considered separately, although in most instances the results of therapy are based on the progress of a concomitant secondary infection. This was done particularly to observe a group in which sensitization is known to occur.

Intramuscularly administered neomycin was given to another group of patients. Varying dosage schedules were used. With one exception, 0.5 gm. (100,000 units) was given once or twice daily. In an attempt to avoid the untoward reactions reported by others, administration of neomycin was not continued longer than seven days. No patients with evidence of impaired kidney function were given intramuscular neomycin therapy.

Cultures from lesions were taken before therapy in 151 patients, with as many follow-up cultures taken as possible. These were taken as swabs from beneath crusts,

TABLE 1.—*Clinical Cases Treated with Topical Neomycin*

Diagnosis	No. of Patients	Preparation Used				Results				Reactions
		Water-miscible Base	Greasy Base	Ophthalmic	Wet Dressing	Marked Improvement *	Improvement †	Same	Worse	
Otitis externa	12	3	9	1	..	1	7	4	..	.....
Pustules	15	3	11	1	..	1	14	..	..	.....
Infectious eczematoid dermatitis	84	26	61	2	2	33	35	14	2	1 doubtful reaction
Conjunctivitis	6	..	..	6	..	..	5	..	1	1 patient irritated—patch tests negative
Folliculitis	77	23	54	2	..	26	45	6	..	.....
Herpes simplex	16	2	15	2	..	2	14	..	..	.....
Impetigo	102	11	91	2	..	81	16	2	3	2 patients seemed irritated—patch test negative
Secondary pyogenic infection	100	11	87	3	1	54	42	2	2	2 patients seemed irritated—patch test negative
Blepharitis marginalis	24	..	1	23	..	..	21	2	1	.....
Hidradenitis suppurativa	3	2	2	..	..	..	2	..	1	1 patient sensitive to neomycin—positive patch test
Granuloma (nonspecific)	9	2	7	..	..	..	9	..	..	.....
Acne varioliformis	3	3	2	..	..	..	3	..	..	.....
Perlèche	10	3	6	2	..	3	4	3	..	1 patient treated 5 mo., then seemed irritated
Fissures	51	7	41	5	1	8	40	3	..	.....
Prophylaxis ‡	70	10	35	26	..	..	..	..	..	.....
Stasis ulcers	22	12	9	..	5	2	15	2	3	1 irritation from wet dressings—patch test negative
Burns	7	1	6	..	..	2	5	..	..	.....
Furuncles	21	2	20	..	..	2	18	1	..	.....
Infected sebaceous cysts	14	5	8	3	..	1	13	..	..	.....
Dermatitis repens	4	..	4	..	..	1	3	..	..	.....
Paronychia	12	2	11	..	..	..	12	..	..	.....
Acne excoriée	10	4	6	..	1	3	6	1	..	.....
Kerion	5	..	5	..	..	..	5	..	..	.....
Seborrheic dermatitis	9	3	6	1	1	2	6	1	..	.....
Ecthyma	8	1	7	..	..	6	2	..	..	.....
Sycosis	9	5	5	..	..	1	7	..	1	.....
Miscellaneous: x-ray burn, acne keloidalis, cellulitis, sty	10	1	9	..	..	..	4	6	..	.....
Secondarily infected atopic dermatitis	9	1	8	..	2	4	4	1	..	.....
Total	722	..	..	..	..	233	357	48	14	9

* Marked improvement = infection clear in less than one week.
† Improvement = infection clear or better in two or three weeks.
‡ Given to assess irritation in patients treated with physical agents such as irradiation, freezing, or fulguration.

Another series of patients was treated with wet compresses using a solution containing 1 mg. (200 units) neomycin per cubic centimeter. In many instances wet boric acid packs were used on similarly involved areas of the same patient for comparison.

or from incised pustules after careful cleansing of the skin. Cultures from ulcers, taken as swabs from the ulcerated area and where possible below the surface, were less satisfactory.

Provocative patch tests with the ointment and the water-miscible base containing 5 mg. neomycin per gram were carried out on an additional 124 persons. The second application was made 14 days after the first, and one positive reaction to the water-miscible base containing neomycin was observed. Patch tests with 0.5 gm. neomycin per 5 cc. sterile saline, the water-miscible base alone, and the water-miscible base containing neomycin were repeated on the patient in whom this reaction occurred. The latter two samples gave positive reactions. Apparently this was a case of sensitivity to the water-miscible base rather than to neomycin, since there was no reaction to the neomycin in sterile saline solution.

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6. Duncan et al.[6a] Waksman et al.[6d] (*a*) Waksman, S. A.: Streptomycin and Neomycin: An Antibiotic Approach to Tuberculosis, Brit. M. J. **2**: 595 (Sept. 9) 1950. (*b*) Waksman, S. A.; Frankel, J., and Graessle, O.: In Vivo Activity of Neomycin, J. Bact. **58**: 229 (Aug.) 1949.

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RESULTS

Table 1 gives the results obtained by topical application of neomycin to 722 patients. Responses were, for the most part, very satisfactory. Many patients used the preparations for a time, discontinued therapy, and then resumed it for the same or another condition. The lack of skin reactions in these patients further emphasizes the low sensitizing capacity of neomycin.

Our early experience with neomycin indicated that the greasy base produced a more rapid effect than the water-miscible base. Therefore, the former was used in most cases. On some patients neomycin was used first in the water-miscible base, and later in the greasy base, with apparently better results with the latter preparation.

Healing proceeded satisfactorily during the use of these preparations. The wet compresses containing neomycin were far more effective than the control (usually boric acid dressings).

TABLE 2.—*Clinical Cases Treated with Intramuscular Neomycin*

Diagnosis	No. of Patients	Treatment	Results			
			Marked Improvement	Improvement	Same	Worse
Secondarily infected contact dermatitis	1	0.5 gm. neomycin I.M. daily for 6 days, W.D.	..	1	..	..
Secondarily infected fungus infection	6	I.M. neomycin, W.D. in 4 patients, neomycin ointment in 2 patients	5	1	..	..
Secondarily infected stasis ulcer	3	I.M. neomycin, W.D., neomycin ointment in 1 patient	..	2	..	1
Furunculosis	4	0.5 gm. neomycin I.M. daily for 3 days	4	..	..	..
Paronychia	1	0.5 gm. neomycin I.M. daily for 4 days	1	..	..	..
Infectious eczematoid dermatitis	6	I.M. neomycin, neomycin ointment locally in 3 patients	4	2	..	..
Cellulitis	2	I.M. neomycin.....	1	1	..	..
Total.....	23		15	7	..	1

I.M. = intramuscular administration.
W.D. = wet dressings containing 1 mg. neomycin per cubic centimeter.
Marked improvement = infection clear in less than one week.
Improvement = infection clear or better in two to three weeks.
No reactions were noted in this series. Intramuscularly administered neomycin was never used for more than 7 days.

Most of the cases of pyogenic skin infections showed definite improvement in two to five days. Figure 1 shows the arms of a 6-year-old girl with infectious eczematoid dermatitis before therapy and five days later. Therapy during the first three days consisted of intramuscularly administered neomycin twice daily and neomycin wet dressings; thereafter neomycin ointment was applied three times a day.

Figure 2 shows the side view of a 13-year-old Negro girl with secondarily infected seborrheic dermatitis and the same girl after seven days of therapy. This consisted of neomycin wet dressings applied to the ears 12 hours a day for three days, neomycin ointment, and daily shampoos.

The ointments caused irritation on several patients on whom patch tests were negative. These reactions are difficult to interpret. The greasy ointment base seemed better tolerated than the water-miscible one in most instances. Only one proved case of sensitivity was observed. This woman, who had hidradenitis suppurativa, reacted to both ointments. She had a positive patch test reaction to both, as well as a focal flare of the dermatitis that had been present in her axillae, as the patch tests became positive.

The ophthalmic ointment was satisfactory. No case of irritation from its use was observed. Only occasionally

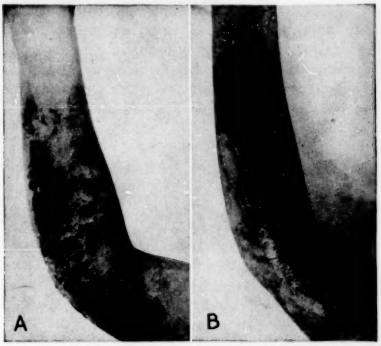

Fig. 1.—Infectious eczematoid dermatitis before and five days after topical and parenteral neomycin therapy.

did a patient experience burning on the eyelids or in the eyes, but it was never necessary to discontinue the medication because of this.

Table 2 illustrates the results of therapy with intramuscularly administered neomycin with or without topical therapy. No undesirable reactions were noted in these 23 patients.

Among the failures with this therapy were two children in the same family who first had a hemolytic staphylococcic infection and then in whom, while using

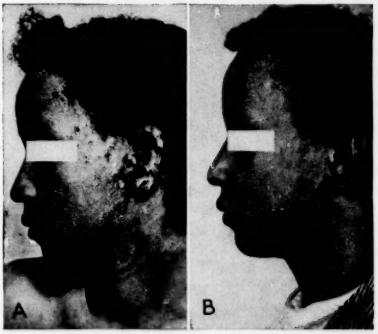

Fig. 2.—Seborrheic dermatitis with marked secondary infection *A*, before therapy and *B*, seven days after topical therapy with neomycin ointment.

neomycin ointment, a hemolytic streptococcic infection developed which subsequently cleared with use of penicillin ointment. Two cases of Bacillus pyocyaneus (Pseudomonas aeruginosa) infection resistant to neomycin in vitro as well as in vivo developed while neomycin was being used topically. Duncan, Clancy, Wolgamot, and

Beidleman [8a] state that B. proteus and B. pyocyaneus exhibit properties suggesting potential development of resistance to neomycin.

BACTERIOLOGY

Of the more than 300 cultures taken, 44 were sterile and 30 were contaminated. For final evaluation, cultures from 151 patients were available. Swabs taken as previously described were incubated overnight in heart-brain infusion and were subcultured on blood agar. Most cultures showed hemolytic Staphylococcus aureus. Gelatin liquefaction and plasma coagulation were tested routinely on these cultures. The hemolytic streptococci and B. pyocaneus (Ps. aeruginosa) cultures were not further subdivided. Sensitivity to neomycin was tested on all cultures with paper disks of constant diameter soaked in neomycin and afterwards dried. Photoprints were taken from each sensitivity test.

TABLE 3.—*Inhibition of Staphylococci in Relation to Biological Factors*

Size of Inhibition *	Gelatin Liquefied; Coagulase Present (%)	Gelatin Not Liquefied; Coagulase Present (%)
Less than 15 mm.	4	4
15 to 18 mm.	70	55
19 mm. or over	26	41
	Total of 50 cases	Total of 70 cases

* Paper disk method on agar plates.

TABLE 4.—*Correlation of Cultures with Clinical Results*

Culture	Results: Marked Improvement	Improvement	Initial Improvement	Same	Worse	No Follow-up	Total
Impetigo							
Staph.*	21	7	..	2	..	7	37
Staph.* and Strep.†	2	2	..	..	2	..	6
Strep.†	5	1	..	..	1	..	7
Infectious eczematoid dermatitis							
Staph.*	16	5	4	2	..	4	31
Staph.* and Strep.†	1	..	1	..	..	..	2
Strep.†	1	..	..	..	..	..	1
Infected insect bites							
Staph.*	12	1	..	..	..	4	17
Staph.* and Strep.†	1	2	..	..	..	..	3
Strep.†	1	..	..	..	..	..	1
Folliculitis, cellulitis, furunculosis							
Staph.*	12	3	..	..	1	1	17
Infected stasis ulcers							
Staph.*	4	2	..	1	1	1	9
Staph.* and Pyocyan.‡	..	2	1	..	..	..	3
Miscellaneous							
Staph.*	10	3	1	..	1	1	16
Pyocyan.‡	..	..	..	1	..	..	1
Total	86	28	7	6	6	18	151

* Staph. = hemolytic Staphylococcus aureus.
† Strep. = hemolytic Streptococcus.
‡ Pyocyan. = Bacillus pyocyaneus.

All staphylococci were sensitive to neomycin, the diameter of inhibition being at least 14 mm. with the disks soaked in aqueous solution containing 3 mg. neomycin per cubic centimeter. Control titration in broth showed that a diameter of ±15 mm. corresponds to complete inhibition at a level of 0.05 mg. neomycin per cubic centimeter of medium. In 20 cases, hemolytic Staph. aureus cultures were obtained one or more times after treatment as well as before treatment. There was no decreased sensitivity to neomycin if the normal variation of sensitivity studies is considered.

There were, as expected, four groups in 128 cultures of hemolytic Staph. aureus: (1) gelatin liquefied, coagulase positive; (2) gelatin not liquefied, coagulase positive; (3) gelatin liquefied, coagulase negative; (4) gelatin not liquefied, coagulase negative. Only five cultures were coagulase negative. There was a definite difference between the sensitivity to neomycin in Groups 1 and 2 (Table 3). The average diameter of inhibition for Group 2 was larger and the incidence of diameter more than 19 mm. was 15% greater than for Group 1. There was, however, no significant difference in the therapeutic results with these two groups.

Hemolytic streptococci cultures from 19 of 20 patients were inhibited by neomycin in vitro. B. pyocyaneus cultures from 10 of 12 patients were inhibited by neomycin. Eight of these latter patients had urological diseases and are not included in this study.

Table 4 shows the comparison of clinical results with the cultures. In summary, marked improvement or improvement was obtained in 88% of 109 patients with cultures of hemolytic Staph. aureus, and in 89% of 9 patients with cultures of hemolytic streptococci. When cultures of both hemolytic Staph. aureus and hemolytic streptococci were obtained, improvement was noted in 73% of 11 patients; and when a culture of B. pyocyaneus was obtained, improvement was noted in only 50% of four patients. With the exception of hemolytic Staph. aureus, the number of cultures is insufficient to permit conclusions that are statistically significant. The results, however, suggest that B. pyocyaneus or hemolytic streptococcic infection which develops during treatment of a primary staphylococcic infection with neomycin may not be benefited by neomycin therapy as much as a primary staphylococcic or streptococcic infection.

COMMENT

In our early studies with neomycin, we were impressed by its effectiveness and the relative absence of irritation produced. Initial enthusiasm based on encouraging preliminary experience with a new product is not always justified, but added experience confirmed our original impressions. We recognized that many factors are involved in the objective appraisal of a new agent for topical therapy, and that adequate controls are not always easy to establish. However, enough comparative evidence is available to convince us of the therapeutic efficacy of this drug. In several instances, neomycin preparations were used satisfactorily on patients who were sensitive to other antibiotics, including aureomycin, bacitracin, and penicillin.

There was only one instance of definite sensitivity to neomycin in a total of 869 cases (including those in which the provocative patch tests were given), indicating that neomycin has a low sensitizing index. Sensitization to the bases was noted more often than sensitization to neomycin. Irritation during treatment with the preparations, however, is difficult to interpret. In the group of nine patients showing irritation, there may have been more than one individual who was sensitive to neomycin, but this was not substantiated by patch tests.

Patients with atopic dermatitis, stasis dermatitis, and seborrheic dermatitis were surprisingly tolerant to the preparations. It is felt that the skin of these patients is relatively easily sensitized and affords a good basis for a test of the possible sensitizing properties of a new drug.

SUMMARY AND CONCLUSIONS

1. Neomycin is a valuable antibiotic for topical therapy.

2. In a series of 675 patients with skin infections, neomycin was more effective for most skin infections than other topical agents we have used.

3. Some patients with hemolytic streptococcic and pyocyanic infections did not respond satisfactorily to neomycin.

4. The sensitizing index of neomycin is very low, so that it may be used generally without fear of reactions.

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NEPHROSTOMY DRAINAGE AND SPLINTING OF URETER IN ROUTINE KIDNEY SURGERY

H. Haynes Baird, M.D.
and
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There has been very little written on nephrostomy drainage and splinting of the ureter in routine kidney surgery except in connection with pyeloplasties and revision of the ureteropelvic junction. However, we believe that by applying the following two fundamental surgical principles, nephrostomy drainage and a ureteral splint will be more frequently used: 1. An infected kidney should be adequately drained. 2. Ureteral peristalsis is dependent on a histologically normal intact ureter and fluid within the lumen.

If one goes back many years prior to the advent of chemotherapy and antibiotics, one finds that it was not an infrequent occurrence for a urologist to do a nephrostomy or a pyelostomy in cases of severe pyelonephritis of pregnancy. For a long period of time nothing of importance was done about nephrostomy drainage until the advent of plastic surgery on the pelvis of the kidney and upper part of the ureter. In this paper we are advocating a more liberal use of nephrostomy drainage and splinting of the ureter, based on the preceding two principles, as an adjunct to the armamentarium in obtaining better results in less time and with fewer complications.

This paper is primarily concerned with the use of a nephrostomy drainage combined with ureteral splinting in routine kidney surgery—to be specific, in surgery for the various types of renal calculi, especially when the stones are multiple, and for stag-horn calculi.

Many of these conditions are complicated by some type of obstruction at the ureteropelvic junction. The various methods for relief of ureteropelvic obstruction have been extensively written about and well illustrated in excellent articles in recent years; therefore, we do not wish to dwell on this phase of plastic surgery of the kidney and upper part of the ureter.

We have used various sizes of the McIver nephrostomy tube with an attached ureteral splint, and, in our opinion, this drainage tube and splint is simply constructed and easy to introduce. However, certain objections have been raised to its use. One very well-known writer on plastic surgery of the kidney has stated that the McIver tube is unsatisfactory because in his hands the splinting portion of the drainage tube will not stay down the ureter but works back up into the kidney pelvis. This has not been our experience, based on postoperative x-rays. Another objection to the use of this type of nephrostomy drainage is that the portion of the tube which drains the kidney is connected with the splint, and when the nephrostomy drainage is removed, the ureteral splinting ceases. If prolonged ureteral splinting is indicated, some other form of nephrostomy drainage is indicated. There might be an objection raised to nephrostomy drainage with splinting in ordinary kidney surgery on account of the small opening made in the kidney parenchyma for the exit of the nephrostomy tube. Of course, this results in localized fibrosis with a minimum amount of kidney damage at the point of exit of the tube.

It is our belief that the previous objections are minimal as compared to certain advantages which will be listed and illustrated with case reports. Since urine is a powerful irritant to all tissues, if it is drained through a nephrostomy tube and not allowed to fill the renal fossa the postoperative course should be smoother and any subsequent surgery should be easier because of the decreased amount of fibrosis.

In removing stag-horn calculi or multiple calculi, a small fragment of stone or particles of sand are very apt to be left behind, even though an x-ray is made at the operating table. In such cases these particles are more likely to pass down the ureter if a McIver tube has been used (after its removal), since the opening in the kidney pelvis would be closed and the ureter dilated as a result of the ureteral splint. These small particles, by clumping together, account for the high incidence of stone recurrences in many cases. During the past three years we have used the McIver nephrostomy tube in 37 consecutive cases of renal stones without a recurrence; in 26 cases it has been 18 months or longer since operation and in 11, between 6 and 18 months. We do not intend to imply that this is the answer to stone recurrence, but these results are given as a clinical observation.

CASE 1.—R. C., a white woman, 25, was admitted to the hospital with a history of painless gross hematuria intermittently for three weeks. The general physical examination findings were noncontributory, and the urological examination revealed a stag-horn calculus in the left kidney (Fig. 1) with a ureteropelvic obstruction and a Grade 2 caliectasis. The blood determinations were normal, including a blood calcium and an inorganic phosphorus determination. The urine contained many white and red blood cells. A urine culture from the right kidney was negative, and a culture from the left was positive for gamma streptococci.

Read before the Section on Urology at the One Hundredth Annual Session of the American Medical Association, Atlantic City, June 13, 1951.

At operation the ureteropelvic obstruction was found to be due to extrinsic causes and was easily corrected, and since there was a large renal pelvis, the stone was removed *in toto* through the pelvis. The interior of the kidney was palpated for any particles of stones, and none were found. A portable x-ray made at the operating room table failed to reveal any stones, so a McIver nephrostomy tube was used and the incision in the renal pelvis was closed with interrupted No. 0000 chromic surgical suture.

Fig. 1.—(*A*) Kidney, ureter, and bladder x-ray showing a stag-horn stone in the left kidney which fills the renal pelvis. (*B*) Urogram which reveals a ureteropelvic obstruction and caliectasis.

Fig. 2.—(*A*) Kidney, ureter, and bladder x-ray which shows innumerable small stones in the right kidney (*B*) Retrograde pyelogram made by injecting through the McIver nephrostomy tube 12 days postoperatively.

The postoperative course was uneventful, and the McIver tube was removed on the seventh day. Some urine drained through the loin incision for six hours. The patient was discharged nine days after operation. Fourteen days after operation she had severe left renal colic for three hours, followed by the passage of a small stone.

Obviously the small stone which was passed after the patient went home had been left in the kidney at the time of operation. If a nephrostomy tube with a ureteral splint had not been used, the stone could have dropped in the ureter soon after operation, thereby causing considerable trouble, inasmuch as there would have been little or no expulsive force.

CASE 2.—J. C., a white man, 33, was admitted to the hospital with severe kidney colic on the right side and a temperature of 105 F. The patient gave a history of perinephric abscess drained on the left side. General physical examination revealed an acutely ill, poorly nourished man. Urological examination revealed a Grade 4 hydronephrosis and over 100 small stones in the right kidney; the left kidney parenchyma was completely destroyed by hydronephrosis.

Laboratory Studies: The red blood cell count was 4,000,000, with 12 gm. of hemoglobin, and the white blood cell count was 15,000, with a shift to the left on the differential. The nonprotein nitrogen was 38 mg. per 100 cc. A urine culture revealed Bacterium coli. Blood calcium and inorganic phosphorus values were normal.

Fig. 3.—A portable x-ray made at the operating table after removal of the stones.

For seven days the patient was treated with streptomycin and a ureteral catheter to the right kidney; the first three days the temperature continued to spike between 103 and 107 F and then returned to 100 F for the next four days. The right kidney was then explored, and a Grade 4 hydropelvis was found, with a high insertion of the ureter which produced almost complete obstruction. The excess pelvis was excised and 130 stones removed (Fig. 2*A*); a portable x-ray made at the operating table (Fig. 3) revealed no stones. A Foley Y-ureteropyeloplasty was done, and a McIver nephrostomy tube with a 10F ureteral splint was used. The postoperative course was very benign; the temperature was normal after the second day. A retrograde pyelogram (Fig. 2*B*), which revealed a minimal hydropelvis with the ureteropelvic juncture at the most dependent part of the pelvis, was made by injecting through the McIver nephrostomy tube 12 days postoperatively. The nephrostomy tube was removed 14 days after operation, with a prompt closure of the sinus.

A right retrograde pyelogram three years later revealed no progression of the hydronephrosis and a normal emptying time. Subjectively, the patient has had no further trouble except for a left nephrectomy for removal of the nonfunctioning hydronephrotic sac.

CASE 3.—H. S., a white woman, 33, was admitted to the hospital because of chills, fever, and pain in the left flank. The past history was significant in that she had had similar episodes during two previous pregnancies and was treated with various antibiotics with rather poor results. Physical examination revealed an acutely ill, three-months' pregnant patient with a large tender palpable mass in the left flank.

Laboratory studies: Urine culture revealed Bacterium coli and Aerobacter aerogenes.

Urological examination revealed a hypoplastic nonfunctioning right kidney and a large hydronephrotic left kidney (Fig. 4*A*), which contained between 300 and 500 cc. of urine. It was very difficult to pass a ureteral catheter into the kidney pelvis because of the angulation of the upper part of the ureter (Fig. 4*B*).

A hysterotomy and tubal ligation were done, and for 16 days the patient was treated with various antibiotics and a ureteral catheter in the left kidney. Despite these measures, the patient continued to have temperature elevation to 104 F and pain in the left flank. At this point we decided to explore the kidney, and it was found to contain many small cortical abscesses about the size of a pinhead; there was a hydropelvis and caliectasis, which contained about 500 cc. of cloudy urine. There was a ureteropelvic obstruction, and the upper part of the ureter formed an S-shaped angulation (Fig. 4*B*) apparently due to the large pelvis, which actually shortened the distance from the bladder to the normal position of the renal pelvis. Realizing that results are not too good if a pyeloplasty is done in the presence of infection, we, nevertheless, decided to go ahead since the patient had been given antibiotics for 16 days with little improvement. The large pelvis was resected, thereby making it possible to straighten the S-shaped angulation of the upper part of the ureter; a Foley Y-ureteropyeloplasty was done posteriorly and one anteriorly, and a McIver nephrostomy tube with a 10 F ureteral splint was used.

Fig. 4.—(*A*) Preoperative retrograde pyelogram; 300 cc. of dye was injected, which did not fill the kidney completely. (*B*) Kidney, ureter, and bladder x-ray with urethral catheter showing S-shaped angulation of the upper part of the ureter.

The day following operation the patient had a temperature of 101 F, which then returned to normal and remained so for the duration of the hospital stay. A retrograde pyelogram (Fig. 5) was made 10 days after operation by injecting dye through the McIver tube and revealed the suture line to be intact without any extravasation of dye. The nephrostomy tube and ureteral splint were removed on the 14th postoperative day, and urine ceased to leak through the sinus after six hours.

The preceding case illustrates what can be accomplished by adequate drainage of infected urine. Even though the organisms were sensitive to the drugs used, it was not possible to improve the patient's clinical course until nephrostomy drainage was done. It is very easy for this surgical principle to be forgotten in the present antibiotic age.

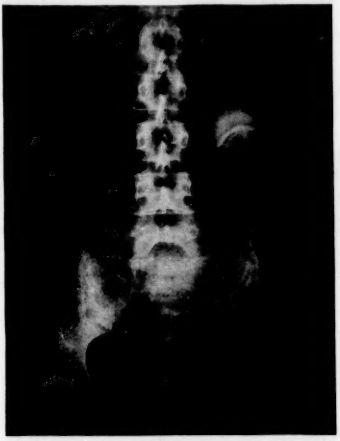

Fig. 5.—Retrograde pyelogram made by injecting 25 cc. of dye through the McIver nephrostomy tube 10 days postoperatively. Note dye in the ureter around the ureteral splint 10F, which means there is an adequate ureteropelvic opening.

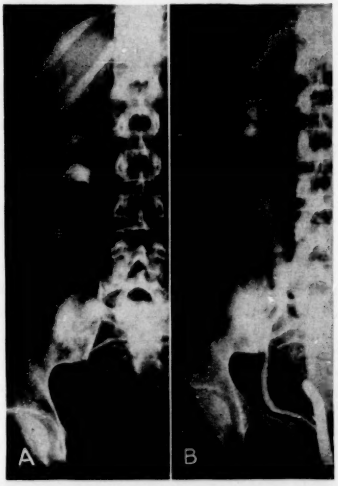

Fig. 6.—(*A*) Preoperative retrograde pyelogram in supine position without any angulation of the upper part of the ureter. (*B*) Postoperative retrograde pyelogram in supine position showing marked angulation of the upper part of the ureter with some hydronephrosis.

Beidleman [3a] state that B. proteus and B. pyocyaneus exhibit properties suggesting potential development of resistance to neomycin.

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15 to 18 mm.	70	55
19 mm. or over	26	41
	Total of 50 cases	Total of 70 cases

* Paper disk method on agar plates.

TABLE 4.—*Correlation of Cultures with Clinical Results*

Culture	Results: Marked Improvement	Improvement	Initial Improvement	Same	Worse	No Follow-up	Total
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Staph.*	21	7	..	2	..	7	37
Staph.* and Strep.†	2	2	..	..	2	..	6
Strep.†	5	1	..	..	1	..	7
Infectious eczematoid dermatitis							
Staph.*	16	5	4	2	..	4	31
Staph.* and Strep.†	1	..	1	..	..	..	2
Strep.†	1	..	..	..	..	..	1
Infected insect bites							
Staph.*	12	1	..	..	..	4	17
Staph.* and Strep.†	1	2	..	..	..	..	3
Strep.†	1	..	..	..	..	..	1
Folliculitis, cellulitis, furunculosis							
Staph.*	12	3	..	..	1	1	17
Infected stasis ulcers							
Staph.*	4	2	..	1	1	1	9
Staph.* and Pyocyan.‡	..	2	1	..	..	..	3
Miscellaneous							
Staph.*	10	3	1	..	1	1	16
Pyocyan.‡	..	..	..	1	..	..	1
Total	86	28	7	6	6	18	151

* Staph. = hemolytic Staphylococcus aureus.
† Strep. = hemolytic Streptococcus.
‡ Pyocyan. = Bacillus pyocyaneus.

All staphylococci were sensitive to neomycin, the diameter of inhibition being at least 14 mm. with the disks soaked in aqueous solution containing 3 mg. neomycin per cubic centimeter. Control titration in broth showed that a diameter of ±15 mm. corresponds to complete inhibition at a level of 0.05 mg. neomycin per cubic centimeter of medium. In 20 cases, hemolytic Staph. aureus cultures were obtained one or more times after treatment as well as before treatment. There was no decreased sensitivity to neomycin if the normal variation of sensitivity studies is considered.

There were, as expected, four groups in 128 cultures of hemolytic Staph. aureus: (1) gelatin liquefied, coagulase positive; (2) gelatin not liquefied, coagulase positive; (3) gelatin liquefied, coagulase negative; (4) gelatin not liquefied, coagulase negative. Only five cultures were coagulase negative. There was a definite difference between the sensitivity to neomycin in Groups 1 and 2 (Table 3). The average diameter of inhibition for Group 2 was larger and the incidence of diameter more than 19 mm. was 15% greater than for Group 1. There was, however, no significant difference in the therapeutic results with these two groups.

Hemolytic streptococci cultures from 19 of 20 patients were inhibited by neomycin in vitro. B. pyocyaneus cultures from 10 of 12 patients were inhibited by neomycin. Eight of these latter patients had urological diseases and are not included in this study.

Table 4 shows the comparison of clinical results with the cultures. In summary, marked improvement or improvement was obtained in 88% of 109 patients with cultures of hemolytic Staph. aureus, and in 89% of 9 patients with cultures of hemolytic streptococci. When cultures of both hemolytic Staph. aureus and hemolytic streptococci were obtained, improvement was noted in 73% of 11 patients; and when a culture of B. pyocyaneus was obtained, improvement was noted in only 50% of four patients. With the exception of hemolytic Staph. aureus, the number of cultures is insufficient to permit conclusions that are statistically significant. The results, however, suggest that B. pyocyaneus or hemolytic streptococcic infection which develops during treatment of a primary staphylococcic infection with neomycin may not be benefited by neomycin therapy as much as a primary staphylococcic or streptococcic infection.

COMMENT

In our early studies with neomycin, we were impressed by its effectiveness and the relative absence of irritation produced. Initial enthusiasm based on encouraging preliminary experience with a new product is not always justified, but added experience confirmed our original impressions. We recognized that many factors are involved in the objective appraisal of a new agent for topical therapy, and that adequate controls are not always easy to establish. However, enough comparative evidence is available to convince us of the therapeutic efficacy of this drug. In several instances, neomycin preparations were used satisfactorily on patients who were sensitive to other antibiotics, including aureomycin, bacitracin, and penicillin.

There was only one instance of definite sensitivity to neomycin in a total of 869 cases (including those in which the provocative patch tests were given), indicating that neomycin has a low sensitizing index. Sensitization to the bases was noted more often than sensitization to neomycin. Irritation during treatment with the preparations, however, is difficult to interpret. In the group of nine patients showing irritation, there may have been more than one individual who was sensitive to neomycin, but this was not substantiated by patch tests.

Patients with atopic dermatitis, stasis dermatitis, and seborrheic dermatitis were surprisingly tolerant to the preparations. It is felt that the skin of these patients is relatively easily sensitized and affords a good basis for a test of the possible sensitizing properties of a new drug.

SUMMARY AND CONCLUSIONS

1. Neomycin is a valuable antibiotic for topical therapy.

2. In a series of 675 patients with skin infections, neomycin was more effective for most skin infections than other topical agents we have used.

3. Some patients with hemolytic streptococcic and pyocyanic infections did not respond satisfactorily to neomycin.

4. The sensitizing index of neomycin is very low, so that it may be used generally without fear of reactions.

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NEPHROSTOMY DRAINAGE AND SPLINTING OF URETER IN ROUTINE KIDNEY SURGERY

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and
Hamilton W. McKay, M.D., Charlotte, N. C.

There has been very little written on nephrostomy drainage and splinting of the ureter in routine kidney surgery except in connection with pyeloplasties and revision of the ureteropelvic junction. However, we believe that by applying the following two fundamental surgical principles, nephrostomy drainage and a ureteral splint will be more frequently used: 1. An infected kidney should be adequately drained. 2. Ureteral peristalsis is dependent on a histologically normal intact ureter and fluid within the lumen.

If one goes back many years prior to the advent of chemotherapy and antibiotics, one finds that it was not an infrequent occurrence for a urologist to do a nephrostomy or a pyelostomy in cases of severe pyelonephritis of pregnancy. For a long period of time nothing of importance was done about nephrostomy drainage until the advent of plastic surgery on the pelvis of the kidney and upper part of the ureter. In this paper we are advocating a more liberal use of nephrostomy drainage and splinting of the ureter, based on the preceding two principles, as an adjunct to the armamentarium in obtaining better results in less time and with fewer complications.

This paper is primarily concerned with the use of a nephrostomy drainage combined with ureteral splinting in routine kidney surgery—to be specific, in surgery for the various types of renal calculi, especially when the stones are multiple, and for stag-horn calculi.

Many of these conditions are complicated by some type of obstruction at the ureteropelvic junction. The various methods for relief of ureteropelvic obstruction have been extensively written about and well illustrated in excellent articles in recent years; therefore, we do not wish to dwell on this phase of plastic surgery of the kidney and upper part of the ureter.

We have used various sizes of the McIver nephrostomy tube with an attached ureteral splint, and, in our opinion, this drainage tube and splint is simply constructed and easy to introduce. However, certain objections have been raised to its use. One very well-known writer on plastic surgery of the kidney has stated that the McIver tube is unsatisfactory because in his hands the splinting portion of the drainage tube will not stay down the ureter but works back up into the kidney pelvis. This has not been our experience, based on postoperative x-rays. Another objection to the use of this type of nephrostomy drainage is that the portion of the tube which drains the kidney is connected with the splint, and when the nephrostomy drainage is removed, the ureteral splinting ceases. If prolonged ureteral splinting is indicated, some other form of nephrostomy drainage is indicated. There might be an objection raised to nephrostomy drainage with splinting in ordinary kidney surgery on account of the small opening made in the kidney parenchyma for the exit of the nephrostomy tube. Of course, this results in localized fibrosis with a minimum amount of kidney damage at the point of exit of the tube.

It is our belief that the previous objections are minimal as compared to certain advantages which will be listed and illustrated with case reports. Since urine is a powerful irritant to all tissues, if it is drained through a nephrostomy tube and not allowed to fill the renal fossa the postoperative course should be smoother and any subsequent surgery should be easier because of the decreased amount of fibrosis.

In removing stag-horn calculi or multiple calculi, a small fragment of stone or particles of sand are very apt to be left behind, even though an x-ray is made at the operating table. In such cases these particles are more likely to pass down the ureter if a McIver tube has been used (after its removal), since the opening in the kidney pelvis would be closed and the ureter dilated as a result of the ureteral splint. These small particles, by clumping together, account for the high incidence of stone recurrences in many cases. During the past three years we have used the McIver nephrostomy tube in 37 consecutive cases of renal stones without a recurrence; in 26 cases it has been 18 months or longer since operation and in 11, between 6 and 18 months. We do not intend to imply that this is the answer to stone recurrence, but these results are given as a clinical observation.

CASE 1.—R. C., a white woman, 25, was admitted to the hospital with a history of painless gross hematuria intermittently for three weeks. The general physical examination findings were noncontributory, and the urological examination revealed a stag-horn calculus in the left kidney (Fig. 1) with a ureteropelvic obstruction and a Grade 2 caliectasis. The blood determinations were normal, including a blood calcium and an inorganic phosphorus determination. The urine contained many white and red blood cells. A urine culture from the right kidney was negative, and a culture from the left was positive for gamma streptococci.

Read before the Section on Urology at the One Hundredth Annual Session of the American Medical Association, Atlantic City, June 13, 1951.

Several writers, as well as ourselves, have shown that ureteral peristalsis is dependent on a histologically normal intact ureter with fluid in the collecting system.[1] When an incision is made in the pelvis of the kidney and urine is allowed to drain into the kidney fossa for several days, we can assume that there would be no or very little peristalsis in the ureter during the time that the urine is escaping through the opening in the pelvis of the kidney. Therefore, if the upper part of the ureter has been dissected from its bed, there is apt to be kinking when the ureter is placed back, due to lack of peristalsis, and it will be fixed in a kinked position unless some splinting device is used. Two cases will be described to illustrate the preceding principle.

CASE 4.—B. S., a white woman, 32, entered the hospital with a history of pain in the right flank, epigastric pain, and nausea, which became severer toward the end of the day. These symptoms had been present for about three to four years. Physical

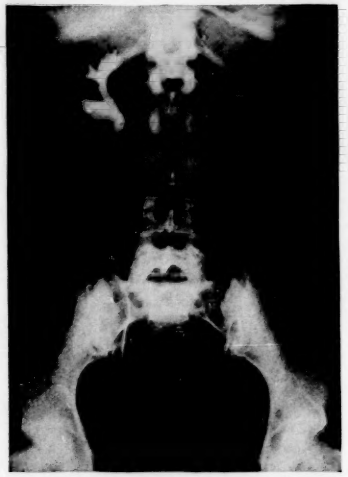

Fig. 7.—Retrograde pyelogram with marked angulation of the upper part of the ureter and Grade I caliectasis.

examination revealed a palpable and tender right kidney. Otherwise nothing unusual was noted. Urological examination revealed a marked ptosis of the right kidney in the upright position, and the renal pelvis did not empty completely in 15 minutes. A pyelogram in the supine position (Fig. 6*A*) revealed no angulation of the upper part of the ureter.

A nephropexy, using Lowsley's ribbon gut, was done along with a lysis of the upper part of the ureter. The postoperative course was uneventful; however, a retrograde pyelogram revealed a marked angulation of the upper part of the ureter (Fig. 6*B*), and it was almost impossible to pass a catheter into the kidney pelvis because of the ureteral angulation.

It is our belief that ureteral peristalsis in the preceding case was greatly diminished for 24 to 48 hours following operation, thus allowing the ureter to become fixed in the permanent angulated position. A ureteral splint would probably have obviated this complication.

CASE 5.—Three years prior to the present hospital admission, H. W., a white woman, 36, had a stone removed from the right renal pelvis. A pyelogram done at that time revealed a normal collecting system and upper part of the ureter. Ever since the pyelolithotomy the patient had complained of a dull pain in the right kidney and episodes of fever and frequency of urination. A pyelogram (Fig. 7) revealed an S-shaped upper part of the ureter through which a catheter could not be passed, and most of the dye remained in the kidney after 15 minutes. The hydronephrosis progressed, and finally a nephrectomy was done for a beginning stag-horn calculus and hydronephrosis, which resulted in cure.

It is our belief that since the upper part of the ureter was dissected from its bed when the pyelolithotomy was done and the urine escaped through the opening in the pelvis for several days, there was no stimulus for peristalsis, and thus the ureter became fixed in the angulated position. Had a McIver nephrostomy tube with a ureteral splint been used and the incision closed in the renal pelvis, the patient would probably have a normal kidney today.

Our experience has been, after removing the nephrostomy tube and splint, that healing takes place in most patients immediately. A few drain as long as three days, but most of these patients are healed in 12 to 24 hours. To us and to our patients this improvement in routine kidney surgery is worthy of consideration. We believe that the use of nephrostomy drainage in ordinary kidney surgery when indicated is comparable to the improvement in technique now used in prostatic surgery, namely, a tight closure of the capsule in perineal prostatectomies and a tight closure of the bladder in suprapubic or retropubic prostatectomies. When a urological surgeon is able to cut short the prolonged drainage of urine into the tissues anywhere in the body, it is certainly a surgical accomplishment worthy of comment.

CONCLUSION

It is obvious we are not advocating routine nephrostomy drainage and ureteral splinting in all kidney surgery.

If we exclude plastic surgery of the pelvis of the kidney and revision of the upper part of the ureter, nephrostomy drainage with a ureteral splint is a great advance in ordinary kidney surgery, both from the viewpoint of the urological surgeon and the patient.

1012 Kings Dr. (Dr. Baird).

1. McKay, H. W.; Baird, H. H., and Lynch, K. M., Jr.: Important Factors in the Surgical Removal of Ureteral Calculi, South. M. J. 41: 394-401 (May) 1948.

Penetrating Shafts of Revelation.—In this modern era, no physician, however pragmatic, can limit his horizon by refusing the fruits of the chemist, or experimentalist, and three expansive years (1931-4) in the department of experimental endocrinology at the Lister Institute stamp my own outlook. Nevertheless, we must not forget Pope's dictum that the proper study of mankind is the study of man, or Trousseau's advice to live with our patients by the bedside, or the fact that Nature herself is a most prolific experimentalist. Let us not be unduly obsessed by the laboratory so that our clinical senses and judgment become blurred, but, at the same time, let the clinician maintain a sensitive awareness of the experimentalist and biochemist, so that their penetrating shafts of revelation may not be shut out by obtuseness. On this background, I hope you will permit me today to direct my thoughts mainly along clinical lines and to indicate in the latter part of my address that the richness and plethora of the clinical field may still throw up new features and new syndromes, remembering with Pasteur that "in the field of observation, chance favors only the mind which is prepared."—S. Leonard Simpson, M.D., Adrenal Hyperfunction and Function, *Bulletin of the New York Academy of Medicine*, December, 1951.

DIAGNOSIS AND TREATMENT OF ACUTE INTESTINAL OBSTRUCTION

Robert E. L. Berry, M.D., Ann Arbor, Mich.

There has been some progress in our knowledge of the pathological physiology and treatment of acute intestinal obstruction in the past two decades. Despite this advance, the mortality rate in the treatment of such obstructions remains discouragingly high. There are differences of opinion among persons with considerable experience as to certain aspects of management, but this does not seem to be importantly related to the continued high mortality rate. The commonest causes of death in small-bowel obstructions [1] are peritonitis and infection. Because they are, for the most part, late manifestations of the disease process, their prevention and early, effective treatment should be the logical method of significantly lowering mortality rates. Failure of early diagnosis and delayed application of proved sound therapeutic procedure undoubtedly are the most important factors in maintenance of the lethal results of acute obstruction.

DIAGNOSIS

Acute Mechanical Small-Bowel Obstruction.—Early diagnosis of intestinal obstruction is possible only by the correlation of a carefully taken history and a detailed physical examination. Abdominal pain and vomiting are the earliest symptoms of mechanical obstruction. Even though these symptoms are associated with a large number of acute abdominal diseases, an evaluation of their nature and a careful physical examination will confirm or present evidence strongly suggesting the diagnosis of obstruction. Pain produced by overactive peristalsis in consequence of the intestinal block is of an intermittent crampy nature. It comes on suddenly, increases in crescendo fashion, and may last from one to three minutes. It may then cease as abruptly as it began, only to recur again and again. The pain of strangulated obstruction tends to be severer and fulminating in nature. The severity may be of such degree that a shocklike picture may be present. The pain tends to be continuous in most instances, with frequent exacerbations due to the anoxia-induced increased peristaltic activity of the bowel wall.[2] As nonviability of the bowel is approached, it becomes flaccid, dilated, and inert, and the colicklike nature of the pain gives way to a steady soreness that may indicate the onset of peritonitis.

The importance of differentiating strangulated obstruction of the bowel from simple obstruction cannot be overemphasized (Table). Few more positive indications for operative intervention exist than intestinal obstructions in which the blood supply of the obstructed loop has been compromised.

Vomiting in intestinal obstruction tends to be more frequent and abundant than in other acute abdominal conditions. It has two principal causal factors: (1) a reflex component produced by abnormal stimulation of the visceral afferent nerve tracts by distention, kinking, traction on the mesentery, and strangulation and (2) a mechanical component produced by distention in and above the obstructed area and peristalsis.[3] Strangulated obstructions are usually characterized by more violent, severer, and more persistent vomiting. This is probably due to a greater reflex stimulation of the visceral nerves. Vomiting observed in simple obstructions tends to be somewhat delayed in onset and is produced by mechanical distention and reverse peristalsis.

Obstipation, constipation, and failure to expel flatus are not reliable symptoms in bowel obstruction. Diarrhea may be present. This is possible because the intestinal tract can still discharge its contents distal to the obstruction.

Early in the course of simple obstructions little help to diagnosis is afforded by the general condition of the patient. Auscultation of the abdomen may reveal synchronous concurrence of pain and increased peristaltic activity (borborygmus). The intimate time relationship of pain and abnormal abdominal sounds establishes the pain as that of intestinal colic and is highly significant in the diagnosis of obstruction. The presence of a scar of a previous abdominal operation should always be regarded with suspicion in a patient presenting symptoms of intestinal obstruction because adhesions are one of the commonest obstructing mechanisms.[1]

If the obstruction is allowed to progress, profound changes in the patient's appearance and general condition occur secondary to intestinal distention, dehydration, and (if perforation takes place) peritonitis. The accumu-

Differential Diagnosis Between Simple and Strangulated Bowel Obstructions

	Strangulated	Simple
Pain	Sudden onset and fulminating; severe, cramplike; may be continuous	Onset gradual; less severe; tends to disappear during periods of inactive peristalsis
Vomiting	Occurs at onset of pain; severe, continuous, and sustained and may have little relation to peristaltic pain	Begins at considerable interval after onset of pain; tends to be simultaneous with peristaltic action
Shock-like manifestations	May appear early at onset; persistent with progressive severity	Appear late in course of obstruction; tend to be less severe
Response to conservative therapy	Poor	Usually good
Peritoneal fluid	Invariably bloody	Clear
Scout roentgenogram	Isolated loop may be present	Isolated loop rarely present
Mass	May be present	Rarely present
Tenderness	May be marked	Usually not marked
Abdominal spasm	Frequently present and marked	Usually absent
Rectal examination	Bloody rectal discharge may be present	Blood rarely present
Blood studies	Dehydration and hemoconcentration do not respond to therapy; white cell count may be elevated	Dehydration and hemoconcentration respond to therapy

From the Department of Surgery, University of Michigan Medical School, University Hospital.

Read before the Scientific Assembly of the Clinical Session of the American Medical Association, Cleveland, Dec. 7, 1950.

1. Coller, F. A., and Buxton, R. W.: Acute Obstruction of the Small Bowel, J. A. M. A. **140**: 135 (May 14) 1949.

2. Crowley, R. T., and Johnston, C. G.: Therapeutic Considerations in Acute Obstruction of Small Intestines, Surg., Gynec. & Obst. **73**: 1, 1941.

3. Crowley, R. T., and Winfield, J. M.: Collective Review: Internal Strangulating Obstruction of Bowel, Internat. Abstr. Surg. **89**: 417, 1949.

lation of gas (70% from swallowed air) and fluid in the obstructed bowel increases the intraluminal pressure, which causes an outpouring of extracellular fluid into the bowel (Fig. 1). The resulting dehydration and diminution of circulating blood volume are a direct result of this loss.[4] Obstruction distention is also responsible for certain effects the nature of which is still obscure. Vomiting and changes in blood pressure and respiration have been noted experimentally when the bowel has been subjected to high degrees of distention.[5] Finally, distention of the bowel results in venous stasis, edema, and increased permeability of the intestinal wall.

Before it was demonstrated that distention and dehydration could have lethal results in intestinal obstruction, many investigators suggested that toxic products produced in the obstructed bowel were responsible for the lethal effects observed. Although there is still disparity of thought concerning the toxic factor in intestinal obstruction, the great majority of clinical and experimental evidence [6] points to the conclusion that distention and fluid disequilibrium are responsible for most of the harmful systemic effects observed in obstruction. Peritonitis resulting from perforation can produce toxicity, but this effect is the result of the peritonitis and increases the effects of obstruction.

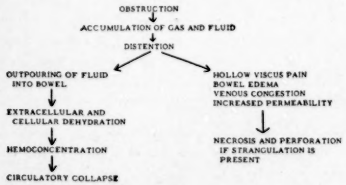

Fig. 1.—Pathological physiology produced by obstruction distention in the small bowel.

The physical findings of strangulated obstructions are clearer than are those of the simple type (Table). External strangulating obstructions usually present an irreducible mass protruding through an abdominal orifice. In very obese persons such a mass may not be visible. Internal strangulating obstructions offer greater diagnostic difficulties for three reasons: (1) many surgical lesions of the abdomen may be easily confused with acute strangulation; (2) no reliable tests exist that absolutely identify this condition, and (3) the cause and site of the obstruction are concealed.

The picture of shock may be observed early in the course of strangulating obstructions. It is characterized by rapid pulse, diminished venous return, and decreased blood volume and is probably principally reflex in origin.[8] Simple obstructions, on the other hand, do not produce this picture until later when dehydration and distention have become well developed. The response of simple obstructions to early treatment is dramatic, the patient obtaining relief and showing marked improvement in clinical condition. In cases of strangulating obstructions marked improvement in the clinical picture does not occur following early treatment because the prime causal factor of the obstruction has not been relieved, and there is continued visceral afferent nervous stimulation with unpleasant effects.

In strangulating obstructions little or no tenderness may be present, even though the pain may be excruciating. One of the reasons for this dissociation is the absence of early irritation of the parietal peritoneum. The exceptions to this are closed-loop obstructions, which are extremely tender, the generalized tenderness associated with spreading peritonitis due to bowel perforation, and increased peritoneal sensitivity associated with transudation of blood and other fluid into the peritoneal cavity after several hours of obstruction. Unless perforation has occurred, true muscle spasm may not exist, although voluntary rigidity may be marked in strangulated obstructions.

Whether or not a mass can be palpated depends upon the nature and location of the obstructing lesion and the thickness of the abdominal wall. It is of significance only when it can be palpated. Absence of a mass does not preclude the presence of a strangulating obstruction. Rectal and pelvic examination may reveal masses not detectable by examination of the abdomen. Rectal examination of patients with strangulating lesions of the terminal ileum (intussusception, strangulated Meckel's diverticulum, and so forth) may reveal blood on the examining finger, which provides strong corroborating evidence of the nature of the obstructive lesion.

Bloody peritoneal fluid is always present in strangulated obstructions four to six hours after the onset of symptoms. Increased capillary and venous pressures with concomitant rupture of these vessels account for the presence of blood in the peritoneal cavity. However, if the primary lesion totally occludes the arterial supply (as, for instance, in mesenteric arterial embolism) bloody fluid may not be present. Blood in the peritoneal cavity is not pathognomonic of strangulated intestinal obstructions since it also occurs in other acute abdominal diseases, such as hemorrhagic pancreatitis, ectopic pregnancy, trauma and torsion of pedunculated ovarian cysts. It is, however, one of the most helpful signs in the differentiation of simple from strangulated obstructions.

Little help in the diagnosis of intestinal obstruction is obtained from examinations of the urine and blood shortly after the onset of symptoms. A rising leucocyte count is suggestive of strangulated lesions but is not an entirely reliable sign. Most of the profound changes in body fluids that may be reflected by laboratory findings (e. g., hemoconcentration, diminished plasma and red blood cell volumes, rising nonprotein nitrogen, and changes in serum sodium, potassium, chloride, and bicarbonate) are the result of large losses of body fluid secondary to distention and prolonged vomiting.

X-Ray.—The most important laboratory aid in the diagnosis of intestinal obstruction is the scout roentgenogram of the abdomen. Roentgenograms taken early after the onset of symptoms in cases of simple obstructions may show little, but as distention progresses the involved

4. Johnston, C. G.: Decompression in Treatment of Intestinal Obstruction, Surg., Gynec. & Obst. **70**: 365, 1940.

5. Schrager, V. L., and Ivy, A. C.: Symptoms Produced by Distension of Gallbladder and Biliary Ducts: Clinical and Experimental Study, Surg., Gynec. & Obst. **47**: 1, 1928.

6. (*a*) Maddock, W. G., and Coller, F. A.: Sodium Chloride Metabolism of Surgical Patients, Ann. Surg. **112**: 520, 1940. (*b*) Penberthy, G. C.; Irvin, J. L., and Tenery, R. M.: Fluid, Salt and Nutritional Balance in Patients with Intestinal Suction Drainage, Ann. Surg. **112**: 530, 1940.

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loops begin to lie in a horizontal fashion across the abdomen and give rise to the familiar stepladder arrangement of the coils of the distended gut (Fig. 2).

In cases of strangulating obstructions an early scout roentgenogram may be of great value. Because of the nature of these lesions, an early distended closed C-loop

Fig. 2.—Mechanical small-bowel obstruction produced by carcinoma of the splenic flexure of the colon. Note the distended right half of the colon and the stepladder effect of the coils of small bowel.

may stand out vividly (Fig. 3). The presence of such an isolated loop of small bowel associated with other diagnostic features of strangulated obstruction is almost pathognomonic. As distention progresses, however, this loop may disappear in the pattern of many distended coils of bowel.

The presence of fluid, manifested by a hazing of the viscera, is further corroborating evidence of a strangulated obstruction, provided other diagnostic features are present.

Adynamic Ileus.—The term "paralytic ileus," which has been used to describe this condition, has largely been discarded because experimental studies have revealed that the contractile power of the gut has not been lost in this condition.[7] Rather it would seem that the activity of the gut is inhibited by overactive sympathetic influence or other inhibitory phenomena. There is no organic obstructing mechanism in cases of adynamic ileus. The distention of the gastrointestinal tract and the failure of normal peristaltic contractions result in failure to propel intestinal contents in a normal manner.

Many disease and traumatic conditions are productive of adynamic ileus. Peritonitis, the trauma of operation, retroperitoneal hemorrhage from any cause, strangulation of the omentum, renal and gallbladder colic, torsion of an ovarian cyst or of the spermatic cord, blunt trauma to the abdomen, prolonged ether anesthesia, fractured ribs, spinal-cord injuries, hyperextension in a body cast, embolism and thrombosis of the mesenteric vessels, infectious fevers, severe general sepsis, and severe central-nervous-system injury are among the known causes of ileus. The entire gastrointestinal tract is usually involved, and in this manner ileus differs sharply from mechanical obstruction. Despite the enormous distention seen in ileus, perforation and gangrene of the intestine are rare occurrences.

The diagnosis of this condition offers no serious difficulty. There is usually a history of one of the predisposing causes. Abdominal examination reveals the tremendous distention which may interfere seriously with respiration. Absent or feeble peristalsis is found upon auscultation of the abdomen. A scout roentgenogram is of great value in diagnosis. The usual pattern is observed in cases of gaseous distention of the entire intestinal tract, with the gas distribution seeking its own level and showing none of the organized loop distention seen in mechanical obstruction (Fig. 4). If the distention is not relieved, the same clinical picture observed in far-advanced mechanical obstruction may ensue due to the effects of distention and large losses of extracellular fluid into the gut by vomiting.

There are occasions in which a differential diagnosis between adynamic ileus and mechanical obstruction may be impossible because components of both may be present concurrently. The hazards of this combination are somewhat lessened by the therapeutic considerations these obstructions have in common.

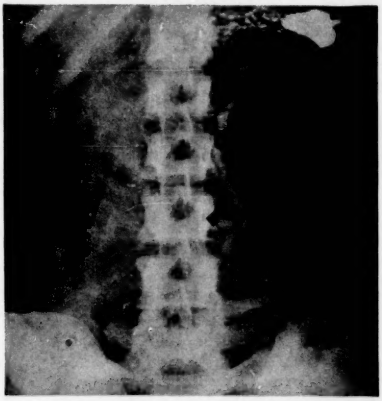

Fig. 3.—Acute strangulated obstruction produced by postoperative adhesions. Observe distended loop (arrow). At autopsy this was found to be infarcted ileum. The presence of this C-loop, when associated with other signs of strangulating obstruction, is almost pathognomonic.

Vascular Obstruction.—Mesenteric Embolism and Thrombosis: Mesenteric thrombosis and embolism are recognized preoperatively with great rarity. The nature

7. Wangensteen, O. H.: Intestinal Obstructions: A Physiological and Clinical Consideration with Emphasis on Therapy, Including Description of Operative Procedures, ed. 2, Springfield, Ill., Charles C Thomas, Publisher, 1942.

of the disease processes with which these lesions may be associated can be of help in diagnosis. The commonest cause of mesenteric artery occlusion is an embolus arising from the valves of the left side of the heart in a patient with serious cardiac disease. Conditions with which venous thrombosis of the mesenteric vessels is most commonly associated are: (1) postoperative splenectomy with extension of the thrombus from the splenic vein into the superior mesenteric vein, (2) hepatic disease, and (3) acute abdominal infections.[8]

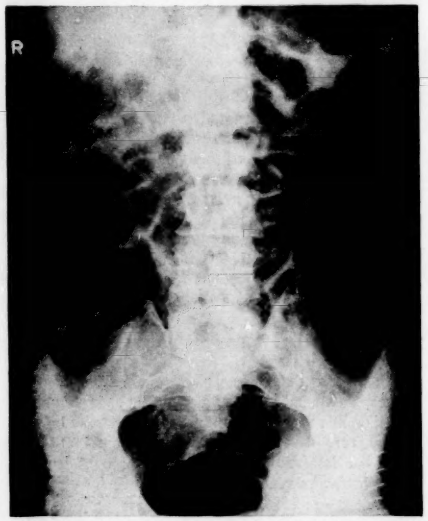

Fig. 4.—Adynamic ileus after inguinal herniorrhaphy. Both large and small bowel show distention. The gas in the bowel has no organized pattern and tends to find its own level.

Mesenteric vascular occlusions are singular in that they may run a course of a week or more before it becomes obvious that something is seriously wrong. The usual manifestations, however, are severe abdominal pain, vomiting, and diarrhea. Both stools and vomitus may contain blood. Shock, if present, is due either to reflex stimulation of the visceral afferent nerves or to large losses of blood into the bowel, occasioned by the venous infarction. Distention of the abdomen is progressive, and peristalsis may be audibly depressed or absent. A scout roentgenogram will reveal distention of both the large and small bowel.

Vascular occlusion involving the mesenteric vessels is a disease of persons usually over 45. Because exact diagnosis is difficult, the important consideration is to recognize that a serious surgical lesion is present that demands operation.

Acute Large-Bowel Obstruction.—Carcinoma is by far the commonest cause of acute mechanical obstruction of the colon. Fundamental differences in the anatomy and physiology of the large and small bowel produce, however, marked variations in the clinical response to obstructions. The small bowel is thicker, more muscular, has a smaller lumen, and the vascular anastomotic patterns are more abundant. Peristalsis in the small bowel is of the progressive type, with periodic waves consisting of annular contraction and relaxation. Peristalsis in the large bowel is of the mass-segmental type, occurring at less frequent intervals and moving the fecal stream from one segment to the next rather abruptly. The pain, therefore, of acute obstruction of the colon may be sudden and severe, but due to its segmental peristaltic activity exacerbations tend to be less severe and less frequent. Vomiting tends to be less severe and less frequent after the initial onset in cases of large-bowel obstruction. Borborygmi are usually present.

The function of the large bowel on the right side is absorption of fluids and on the left concentration and storage of fecal matter. Consequently, there is not the large outpouring of extracellular fluid into the lumen of the colon in response to distention. As a result, evidences of hemoconcentration, dehydration, and shock are not as pronounced as in small-bowel obstructions. The thinner walls and poorer blood supply of the colon and the greater internal pressure exerted on the walls of a greater diameter render it more susceptible to perforation.

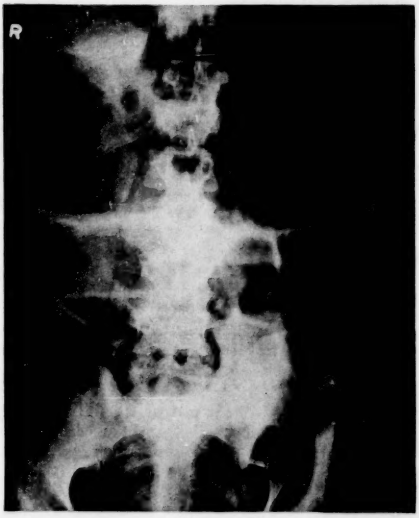

Fig. 5.—Acute mechanical obstruction of the large bowel produced by carcinoma of the sigmoid colon. There is tremendous distention of the colon with minimal small-bowel involvement because of a competent ileocecal valve.

Tremendous abdominal distention may accompany large-bowel obstructions, but as a general rule a scout roentgenogram of the abdomen will provide adequate differentiation between large and small bowel obstruc-

8. Whittaker, L. D., and Pemberton, J. de J.: Mesenteric Vascular Occlusion, J. A. M. A. **111**: 21 (July 2) 1938.

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tion. The appearance of the distended loop of colon, beginning just proximal to the lesion and extending in a retrograde manner to a greatly distended cecum, is quite typical in Figure 5. Whether or not the ileocecal valve is competent is of considerable importance. If it is competent, a closed-loop obstruction is produced, and if

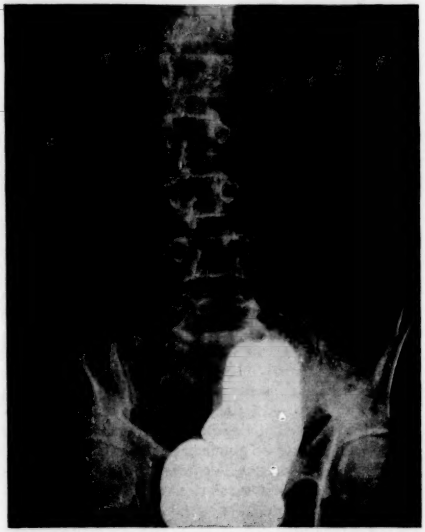

Fig. 6.—X-ray appearance of bowel of Figure 5 after decompression with cecostomy. Barium enema reveals complete retrograde block.

intraluminal tension is not relieved, necrosis and perforation of the thin-walled colon, particularly at the cecum, may rapidly take place. If the valve is not competent, small-bowel obstruction may also develop. It is of interest to note that in 198 cases of small-bowel obstructions reported from this clinic 60, or 30%, were due to carcinoma of the colon.[1]

Strangulated obstructions of the colon are not particularly common, and the majority of them are either a volvulus of the sigmoid colon or cecum. It is essentially a disease of the older age group. Once volvulus has occurred, it may spontaneously untwist itself or respond to nonoperative treatment.[9] Strangulated sigmoid volvulus, however, presents the picture of abdominal distention, pain, vomiting, borborygmi, and abdominal tenderness. A mass may be palpable through the abdominal wall. Tenesmus and bloody rectal mucus may also be present. Shock from loss of blood into the infarcted bowel may be present. A scout roentgenogram will reveal tremendous distention of the sigmoid colon, which may present a C-shape that is almost pathognomonic of the lesion. A barium enema may be helpful in the diagnosis but is not essential.

Volvulus of the cecum (Fig. 6) produces mechanical small-bowel obstruction, and this may be confusing early in the course of the disease. Colicky pain, vomiting, distention, and borborygmi may all be present. A tender mass may be palpable in the right lower quadrant. A scout roentgenogram will reveal a large "empty space" in the right iliac fossa with incisurae characteristic of the colon; a barium enema may show no retrograde passage beyond the obstruction.[10]

TREATMENT

All forms of treatment in intestinal obstruction have as their final objective the restoration of the continuity of the intestinal stream to as near normal as possible. Regardless of whether the obstruction is mechanical, adynamic, or vascular, there are certain common therapeutic considerations. Intestinal distention and vomiting must be relieved; water and electrolyte abnormalities must be corrected and normal balance maintained; plasma volume and the red blood cell mass should be maintained; infection should be combated with appropriate antibiotics, and finally operation, if necessary, should be timed to obtain the maximum benefit of preoperative management without procrastination or undue attempts to obtain from prolonged preoperative treatment benefits that may be obtained only by operation.

Strangulated and vascular obstructions demand immediate operation. One should not await the appearance of the cardinal signs of intestinal distention in cases of simple mechanical obstruction before advising operation. If the patient is seen early, operation should be car-

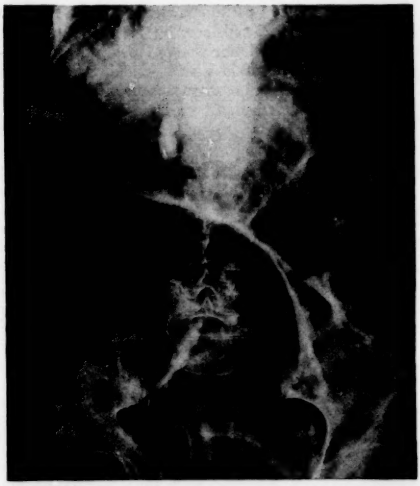

Fig. 7.—Volvulus of the cecum producing mechanical small-bowel obstruction. Observe the large "clear space" in the right lower part of the abdomen.

ried out immediately. Only in this way can the late effects of intestinal obstruction (distention, dehydration, circulatory collapse) be obviated and the necessity of reparative and preoperative treatment that becomes essential with late obstructions prevented.

9. Gilchrist, R. K.: Obstruction due to Volvulus of Colon, Arch. Surg. 56: 79, 1948.
10. Seneque, J., and Couade, M.: Quelques Considérations Sur les volvulus aigus du cæcum, J. Chir. 64: 409, 1948.

Management of Small-Bowel Obstruction.—Intestinal Decompression: In the presence of established small-bowel distention, the passage of a long intestinal tube is preferable to the shorter duodenal tube. Under fluoroscopic control the tip of the long tube is placed in the proximity of the pyloric sphincter, and after the tube has entered the duodenum its progress may be followed by repeated fluoroscopic or scout roentgenogram examinations. If difficulty is encountered in passing the tube from the stomach to duodenum, relaxation of the pyloric sphincter by the inhalation of amyl nitrite or injection of atropine may be helpful.

1. Adynamic ileus. The use of long-tube decompression is, by long odds, the most effective method of treating the distention from adynamic ileus. Adequate management of the underlying cause of the ileus must by necessity parallel intestinal decompression if best results are to be obtained. Other supportive measures directed, for the most part, at stimulating or increasing peristalsis have long been used in the treatment of adynamic ileus with little success and, at times, harm to the patient. These include placing stupes on the abdomen and the administration of atropine, pituitary extract, pilocarpine, physostigmine, choline, enemas, spinal anesthesia, lumbar block, and hypertonic sodium chloride solution. Of these measures, administration of spinal anesthesia seems to be the most effective in stimulating peristalsis in patients in whom peritonitis is not present and who have not responded satisfactorily to suction. Use of hypertonic sodium chloride solution may prove of benefit to patients in whom ileus is associated with depletion of body electrolyte. All of these measures should be considered only adjunctive to the primary therapeutic aims of decompression with the tube and treatment of the underlying cause of ileus.

2. Mechanical obstruction. Mechanical obstruction, without strangulation, may be safely and adequately treated by intestinal decompression in certain cases.[4] After adequate decompression has been obtained, what previously may have appeared to be an operative emergency can now become a procedure of election. When the tube has reached the obstruction, the injection of a thin barium mixture may not only reveal the site of the obstruction but may also provide information as to the nature of the obstructing mechanism. With subsidence of distention and edema of the bowel wall, the continuity of the intestinal tract may reestablish itself. This favorable turn of events may seem to be of great benefit to the patient, because operation has been avoided. The concept of benefit obtained may be ill-conceived for two reasons: (1) the nature of the obstructing mechanism has not been identified, and (2) there is considerable chance of recurrence of the obstruction. Operation remains as the most important and effective treatment of simple mechanical obstruction and should be advised in most, if not all, of such cases.

While certain patients respond to decompression with restoration of intestinal tract continuity, others do not. With patients with fairly complete obstructions in whom the probable nature of the obstructing agent is such that spontaneous reestablishment of intestinal continuity will not follow decompression or with patients with obstructions which, after adequate decompression has been obtained, trial discontinuance of suction is followed by recurrence of distention and symptoms, suction should not be continued but operative treatment carried out. The absence of abdominal operative scars in the presence of apparent simple obstruction suggests the increased possibility that early operation may be necessary. Furthermore, simple obstructions may be converted into strangulating ones by the progression of local pathological processes, particularly edema. It may be generally stated that if there is a lack of adequate progressive decompression or an increase in the distention after 36 to 48 hours of apparently adequate suction dependence on suction should be abandoned and operation performed, provided that the patient's general condition is reasonably compatible.

The use of suction to decompress the gastrointestinal tract in patients with obstructive lesions has been one of the most important factors in making surgery safe for the patient. It is not without its disadvanages and hazards, however. Discomfort to the patient, ulceration of the nasal cavity and pharynx, otitis media (in infants), laryngeal edema, perforation of the bowel, intussusception, and augmented difficulty in maintaining water and electrolyte balance are complications that may be associated with the use of such tubes. They should be removed as soon as it has been reasonably established that no benefit is to be obtained from further use.

Repletion Therapy: All degrees of depletion of extracellular as well as intracellular constituents may exist in patients with intestinal obstruction, depending on the site of the obstruction, duration of the period of loss, and whether perforation of the bowel with resultant peritonitis has taken place. The clinical picture of patients therefore may vary, with some showing no signs of extracellular desiccation to some who are in severe shock or moribund from loss of body fluids. As a general rule, the higher the obstruction and the more prolonged the period of distention and vomiting, the greater will be the loss. It should be recognized that in addition to water and electrolyte loss there is a concomitant loss of plasma protein and red blood cells that accompanies any large loss of extracellular fluid.[11] If peritonitis has resulted from perforation of the bowel, the acute protein loss is further augmented. Severe disturbances in acid-base relationships, with profound changes in the blood pH, may be present. If these are of great magnitude, their correction is an important part of the early treatment of the patient.

All attempts at replacement of the constituents of the extracellular and intracellular fluid compartments lost in intestinal obstruction must be geared to the history and clinical picture presented by the patient. Too much emphasis cannot be placed on the importance of using the clinical status of the patient as the primary guide in replacement therapy. Laboratory studies of the blood and urine may provide important confirming evidence as to the patient's status, but reliance on them as an absolute guide is inaccurate and may be hazardous. Maximum accuracy is obtained by the careful correlation of all clinical and laboratory guides, with the clinical

11. Elkinton, J. R.; Danowski, T. S., and Winkler, A. W.: Hemodynamic Changes in Salt Depletion and in Dehydration, J. Clin. Invest. 25: 120, 1946.

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appearance of the patient being primary in the estimation of his condition.

1. Electrolyte replacement. A standard program of electrolyte replacement cannot be given, because of the necessity of adjusting such treatment to the patient's general condition and response to therapy. Certain principles, however, have been the main support of clinically effective treatment. The main emphasis has been and still is on the replacement of the chief extracellular ions sodium and chloride. The large losses of body fluid associated with severe and prolonged intestinal obstruction also produce a depletion of the important intracellular ion potassium and probably phosphate. The deleterious effects of large losses of potassium in surgical patients are receiving increased attention.[12] The significance of the increased loss of phosphate with severe losses of body water is less well understood, and further investigation will be necessary to understand its importance.

Individuals wth evidences of severe dehydration have lost 4 to 6% of their body weight from loss of water and electrolytes.[13] A rough index is therefore offered of the quantitative amount of repair fluid that may be necessary for repletion. It has been a policy to begin replacement of large losses of extracellular salt water, provided that hypotention is not present, with 0.6% sodium chloride solution rather than 0.9%. It is felt that this solution is handled more physiologically by the body and provides immediate water for that lost insensibly through the skin and lungs as well as water for the formation of urine. If severe hypotention and shock are present due to sodium chloride depletion, the administration of 2% sodium chloride in combination with blood is indicated until the blood pressure is brought to satisfactory levels.

Severe acidosis or alkalosis, when present, should receive early vigorous treatment.[13] Alkalosis as manifested by increased blood pH, and carbon dioxide combining power will respond to isotonic sodium chloride solution therapy in the majority of cases, normal acid-base equilibrium being established as repletion is completed. Extremely severe cases of alkalosis may require the administration of a 0.9% solution of ammonium chloride, but these cases tend to be unusual. It should be remembered that potassium deficits may be associated with a high refractory carbon dioxide combining power and that correction of the alkalosis is obtained only when potassium salts are added to the repair solution.

Acidosis, manifested by a low carbon dioxide combining power and lowered blood pH, is seen more commonly in patients with intestinal obstructions than alkalosis. In the absence of shock or liver damage, a one-sixth molar solution of sodium lactate may be used to combat the acidosis. The administration of sodium bicarbonate as a 1.3% solution will be necessary to combat acidosis in patients in shock or in those who have severe liver damage, as sodium lactate is inefficiently utilized when these conditions are present.

Potassium salts should be added to the repair solutions, when adequate urinary output has been obtained, to aid in the repletion of intracellular water and electrolyte. The severe oliguria usually associated with large losses of body fluids may make immediate administration of potassium salts hazardous because of the danger of heart block when serum potassium levels approach 10 to 12 mEq. Two to 6 gm. of potassium, either as the chloride or a combination of the monobasic and dibasic phosphates, may be added to the repair solutions daily.[12b]

General improvement in the patient's clinical condition, diminution of signs of dehydration, reappearance of chloride in the urine, and reestablishment of normal levels of blood electrolyte and pH all represent positive evidence of the effectiveness of reconstitutive treatment.

2. Water replacement. The status of water hydration is closely allied to the quantitative available electrolyte since total body water is dependent on total body salt. Additional water is necessary, however, to provide water for the insensible loss through the skin and lungs and for the formation of urine. Dependent on environmental and body temperatures, insensible water loss ranges from 1,000 to 2,000 cc. per day.[6a] Another 1,000 cc. is needed for the formation of urine. This is given as 5% dextrose in distilled water. An adequate guide to the status of water hydration may be obtained from determination of the urine specific gravity. If the specific gravity is less than 1,020, it is reasonable to assume that the kidneys are obtaining adequate water to work with. Specific gravity greater than 1,020 suggests that hydration is not adequate and further administration of 5% dextrose in water is necessary.

It becomes obvious that during a 24 to 72 hour period of repletion of a seriously dehydrated patient several liters of electrolyte and dextrose solutions together with blood or plasma transfusions must be administered. There are hazards of overhydration in these circumstances, particularly in older patients and those with poor cardiac reserve. Symptoms of overhydration must be carefully watched for, and the administration of fluids slowed or discontinued as may be necessary.

3. Blood and plasma. In the presence of severe sodium salt depletion, the total circulating protein diminishes at approximately the same rate as do the volumes of plasma and the extravascular extracellular fluid.[11] Large losses of extracellular fluid are associated, therefore, with losses of plasma protein. Rapid reconstitution of extracellular fluid volume without replacement of this plasma protein loss will invite loss of vital intravascular fluid into the interstitial spaces because of diminished colloid osmotic pressure of the blood. The result is tissue edema and continued low blood volume. It has therefore been a policy to administer 500 cc. of blood for each 3,000 cc. of electrolyte solution when repleting large losses of body fluids.

Acute protein loss may be further augmented by loss into the edematous bowel wall and transudation into the peritoneal cavity. If peritonitis has followed bowel perforation, there are even greater losses of blood proteins, and generous transfusions of both plasma and blood will be necessary to maintain the plasma volume and circulating red blood cell mass.

12. (*a*) Darrow, D. C.: Retention of Electrolyte During Recovery from Severe Dehydration due to Diarrhea, J. Pediat. **28**: 515, 1946. (*b*) Darrow, D. C.: Changes in Muscle Composition in Alkalosis, J. Clin. Invest. **25**: 324, 1946.

13. Moyer, C. A.: Fluid and Electrolyte Balance, Surg., Gynec. & Obst. **84**: 586, 1947.

Antibiotics: Study of the effects of administration of antibiotics in cases of experimental closed-loop obstruction and strangulation of the lower part of the ileum in dogs has demonstrated the important role of bacteria in producing death in these types of obstruction. Lethal effects of bacterial growth could be significantly obviated by the use of massive doses of penicillin.[14] The value of the use of antibiotics in cases of human intestinal obstruction has not been thoroughly studied, but it is reasonable to assume that, as in the experimental animal, significant benefit should be obtained from adequate dosage of the proper antibiotics. The use of antibiotics is adjunctive and should change in no way the over-all plan of treatment.

Oxygen: It has been demonstrated experimentally that the inhalation of high concentrations of oxygen exercises a favorable effect in patients with established mechanical obstructions. The reduction of nitrogen tension in the alveolar air by inhalation of high concentrations of oxygen causes the nitrogen in the intestinal lumen to be given up for exhalation by the lungs, with resultant diminution of the distention.[15] Clinical experiences tend to confirm these observations. Maximum benefits from oxygen administration are obtained in the presence of adequately functioning suction, which obviates the effects of further swallowed air.

Operative treatment: Operation remains the most important remedial agent in simple mechanical small-bowel obstruction and is the only effective treatment for strangulated and vascular obstructions. Five types of operative procedure are available to the surgeon: (1) enterostomy; (2) sidetracking procedures such as entero-enterostomy or enterocolostomy; (3) lysis of adhesive bands; (4) resection of pathological bowel and re-establishment of continuity by immediate anastomosis, and (5) exteriorization with establishment of external fistulas.

1. Enterostomy. Because of the effectiveness of long-tube decompression in producing an efficient artificial enterostomy, this procedure, for the most part, has been abandoned. A few patients do not respond satisfactorily to long-tube suction, and yet their condition may not permit extensive operation. Enterostomy may be life-saving with these patients and entirely justified. Twelve out of 15 patients subjected to this procedure at the University Hospital were satisfactorily relieved of their distention.[1] None required operative closure. The incision in the abdominal wall through which the enterostomy is carried out is always infected. Ordinarily this may be of small consequence, but in two patients it was serious and in one the cause of death.

2. Sidetracking. Bypassing obstructing inflammatory masses, fistulas, and irremovable neoplasms by entero-enterostomy or enterocolostomy has a definite place in the treatment of simple obstruction. Besides being an effective remedial procedure, secondary operations, when performed, may be greatly facilitated by the subsidence of infection in that portion of the bowel sidetracked. An end-to-side enterocolostomy is preferred. The distal end may either be exteriorized or closed and buried subcutaneously so that if intraluminal pressures should be great enough to cause dehiscence of the suture line the drainage will be into the wound rather than the abdominal cavity.

3. Lysis of adhesions. Simple cutting of adhesive bands may be done, which results in complete relief from the obstructing mechanism in certain cases. The involved bowel should be carefully evaluated as to its potential for producing recurrent obstruction. If considerable scarring, fibrosis, or diminution of the lumen is present after freeing the bowel or if considerable obvious trauma was done during the freeing of the involved loops, resection of the involved segments may be the safer procedure.

4. Resection. Resection is the obvious treatment of choice in small-bowel lesions in which the obstructing mechanism has produced a nonviable bowel either by strangulation or vascular obstruction. It is the only effective treatment for mesenteric embolism and thrombosis in which, in some cases, almost total resection of the small bowel may be necessary. Such massive resections are not incompatible with life, but they do carry a high mortality rate. Whether or not to resect a loop of bowel whose viability remains in doubt may tax the skill of the most experienced surgeon. Many of these doubtful cases can be resolved, however, by waiting 20 to 30 minutes—with the involved bowel in warm packs of isotonic sodium chloride solution—before making a decision. No satisfactory clinical or laboratory guides are as yet available for determining the viability of the bowel. The final decision rests with the surgeon. If resection is done, the continuity of the bowel should be reestablished by an end-to-end anastomosis. Side-to-side and end-to-side anastomoses should be avoided whenever possible since it has been shown both experimentally and clinically that they carry a higher mortality rate and function less satisfactorily.[7] Whether a closed or open anastomosis is done in cases of early obstruction is of little import. Resections in cases of late obstruction should be done with the closed technique whenever possible because of increased bacterial growth in the obstructed loop.

5. Exteriorization. Exteriorization is of particular value in two circumstances: (1) when the patient's critical condition prevents resection and (2) when the condition of the bowel because of edema and infection precludes the possibility of anastomosis. Secondary operation to reestablish normal continuity of the bowel should be carried out as soon as it is compatible with the patient's general condition. Particularly is this true when it has been necessary to exteriorize small bowel high in the jejunum, thus producing the equivalent of a fistula in the higher part of the small bowel. Infants and small children tolerate exteriorization poorly, and it should be avoided if at all possible among this age group.

Management of Acute Obstructions of the Large Bowel.—Treatment of acute mechanical obstruction of the colon in which the ileocecal valve is competent is cecostomy or occasionally colostomy. Cecostomy may be rapidly and easily performed under local anesthesia

14. Harper, W. H., and Blain, A., III: Effect of Penicillin in Experimental Intestinal Obstruction: Preliminary Report on Closed Loop Studies, Bull. Johns Hopkins Hosp. **76**: 221, 1945. Blain, A., III: Penicillin in Experimental Intestinal Obstruction: Summary of Observations with Reference to Their Clinical Application, Surg., Gynec. & Obst. **84**: 753, 1947.

15. Fine, J.; Banks, B. M.; Sears, J. B., and Hermanson, L.: Treatment of Gaseous Distention of Intestine by Inhalation of 95 Per cent Oxygen: Description of Apparatus for Clinical Administration of High Oxygen Mixtures, Ann. Surg. **103**: 375, 1936.

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even in the gravely ill patient and has proven a safe and efficient manner of decompressing the colon. The necessity for immediate decompression of the overdistended colon cannot be overemphasized since necrosis of the thin-walled colon, particularly at the cecum, rapidly takes place when distention is marked. When the ileocecal valve is not competent, small-bowel obstruction may occur, and, in addition to cecostomy, long-tube decompression is necessary.

The management of dehydration and the use of antibiotics and oxygen differs in no important way from that described for small-bowel obstructions except that dehydration, as a rule, is not the serious problem in colon-obstruction cases that it may be in small-bowel obstruction cases.

Patients with strangulated volvulus of the sigmoid colon and volvulus of the cecum should be operated on as soon as possible. If the strangulated sigmoid loop is nonviable, it may either be exteriorized, which is usually safest, or it may be resected and continuity restored by primary anastomosis, provided that the patient's general condition is compatible with such procedure and the condition of the viable bowel satisfactory for safe anastomosis. Strangulation without necrosis may simply be treated by untwisting the volvulus and restoring the bowel to the abdomen. This may not be practical, however, if the loop is greatly distended, and exteriorization or resection may be necessary even though the bowel is viable.

Volvulus of the cecum is simply treated by untwisting the involved colon, decompressing it with cecostomy, and fixing it to the lateral gutter to prevent recurrence. If the cecum is nonviable, resection of the ascending colon and ileocolostomy is necessary.

SUMMARY

The commonest causes of death in cases of intestinal obstruction are late complications, namely, peritonitis and infection. Early diagnosis and application of proved therapeutically effective procedures should significantly lower mortality rates. The diagnosis of acute intestinal obstruction has been discussed, with emphasis on early diagnostic symptoms and physical findings. The management of reparative, preoperative, and operative treatment of acute bowel obstruction has been outlined.

1313 E. Ann St.

SEVERE NOSEBLEED AND ITS TREATMENT

Olav E. Hallberg, M.D., Rochester, Minn.

As many small boys know from experience, and others will learn soon, bleeding from the nose, as a rule, ceases spontaneously. Epistaxis then can be classed as a relative emergency by the physician. I do not think any of us need rush to see patients who have epistaxis because if enough time elapses the bleeding of about 80% of them will be checked without treatment. However, it is well to remember that when bleeding is persistent, a serious degree of anemia and occasionally death may result.

Deficiencies in the clotting mechanism of the blood are seldom contributing factors in nasal hemorrhage. The bleeding is oftener due to a leak in the side of a vessel, which simply bursts open. When an older person has such a leaking vessel, the vessel tends to gape because of the sclerotic changes in arteries and veins and atrophy of smooth muscle. The bleeding of older persons particularly, tends to repeat itself for about two weeks; it probably takes about that long a time for scar tissue to form and obliterate the vessel permanently.

ANATOMY

A knowledge of the anatomy of the blood supply of the nose is of practical advantage to the physician in deciding which method to employ in treating the hemorrhage and in determining the possible length of hospitalization and possibility of recurrence. Only the principal branches will be described herein. In general, the arterial blood supply of the interior of the nose is derived from both the internal and external carotid arteries, the main supply coming from the latter. There is relatively free anastomosis between the adjacent branches of the external carotid artery of the same side and between the corresponding branches of the two sides. Johnson and Foster [1] have estimated that collateral circulation is established within five days after ligation of the external carotid artery.

The sphenopalatine artery, the terminal branch of the external carotid artery, reaches the nasal cavity through the sphenopalatine foramen. Immediately after entering the nasal fossa, the artery divides into a medial and lateral branch. The lateral branch spreads over the lateral nasal wall. The medial branch called the "nasopalatine artery" enters the septal wall and spreads anteriorly and inferiorly over the septum.

The anterior and posterior ethmoidal arteries arise from the ophthalmic artery of the internal carotid artery. The anterior ethmoidal artery enters the nasal cavity along the side of the crista galli and spreads downward over the anterior superior part of the nasal cavity. It is to be remembered that the posterior ethmoidal artery is of much smaller caliber than the anterior ethmoidal artery. All through the nose, as in the rest of the body, the veins follow the arteries closely.

Woodruff [2] has done much work on epistaxis. He described an area of dilated veins in the posterior part of the nose underneath the posterior end of the inferior turbinate. He stated that the veins in this area become dilated in older persons owing to phlebosclerosis. In

From the Section on Otolaryngology and Rhinology, Mayo Clinic.
Read before the Section on Laryngology, Otology, and Rhinology at the One Hundredth Annual Session of the American Medical Association, Atlantic City, June 14, 1951.

1. Johnson, M. C., and Foster, M. E.: Ligation of External Carotid Artery for Traumatic Nasal Hemorrhage, Ann. Otol., Rhin. & Laryng. **42**: 588-591 (June) 1933.

2. Woodruff, G. G.: Cardiovascular Epistaxis and the Naso-nasopharyngeal plexus, Laryngoscope **59**: 1238-1247 (Nov.) 1949.

many of his cases the source of bleeding was from this area. My colleagues and I also have seen several such cases but have not encountered them as frequently as Woodruff. He called this area the "naso-nasopharyngeal plexus."

Nosebleeds are most frequent from early childhood to puberty, but epistaxis in children usually is not serious.

TABLE 1.—*Causes of Bleeding of 212 Hospitalized Patients*

	Patients	%
Not determined	53	25.0
Hypertension without arteriosclerosis	40	18.9
Hypertension with arteriosclerosis	37	17.5
Trauma	21	9.9
Arteriosclerosis without hypertension	15	7.1
Blood dyscrasia	12	5.7
Familial hemorrhagic telangiectasia	10	4.7
Recent infection	9	4.2
Recent operation	6	2.8
General debility	6	2.8
Malignant lesion	3	1.4
Total	212	100.0

CAUSATIVE FACTORS

Determination of the causes of epistaxis is at best inexact, but causes roughly can be divided into local and general. Local causes are (1) trauma, surgical or caused by picking and blows on the nose; (2) acute and chronic infections in the nose; (3) traumatic septal perforations with repeated small hemorrhages; (4) neoplasms; and (5) hereditary hemorrhagic telangiectasia. Patients who have neoplasms often have repeated small hemorrhages, which will sometimes continue for months, and in hereditary hemorrhagic telangiectasis there is a hereditary defect of the capillaries characterized by minute stellar vascular rarefactions in the skin and the mucous membranes.

General causes of epistaxis are (1) hypertension and arterial changes such as in arteriosclerosis; (2) high venous tension, as in emphysema, whooping cough, bronchitis, and tumor of the neck; (3) blood diseases, especially leukemias, pseudohemophilia, true hemophilia, and multiple myelomas; (4) cardiac diseases, especially mitral stenosis and rheumatic fever in childhood; and (5) sudden change to high altitudes, as in flying.

STUDY OF 212 CASES OF SEVERE EPISTAXIS

From 1930 to 1950, 212 patients who had severe epistaxis have been treated by physicians of the Mayo Clinic in the hospitals. Part of the data on these patients has been published elsewhere.[3]

The various causes of hemorrhage in these cases are listed in Table 1. Only trauma to the nose, either accidental or surgical, was considered a direct cause of nasal hemorrhage. All the others are not more than contributory. Trauma figured in only 9.9% of our 212 cases, while in nearly all the remaining cases the nosebleed began when the patient was asleep or at rest.

Severe epistaxis is essentially a geriatric problem, since the nosebleeds of children and young adults are seldom severe. The incidence of severe epistaxis increases directly with the age in our series (Table 2). The commonest causes of noseblood in our cases were conditions which became progressively worse as the patient grew older. Of all patients studied, more than 40% were more than 60 years of age. Of those past 60 years, 65% had hypertension. This corresponds well with the findings in 106 cases reported previously.[3b]

There were 10 patients with familial hemorrhagic telangiectasia in our group of 212. It is an inherited anomaly and often gives rise to severe and at times fatal hemorrhage; it is characterized by the presence of localized angiomas or telangiectatic lesions.

No obvious cause was found for the hemorrhage in 53 of our 212 cases (25%). Nearly all these patients, however, were in the age group in which cardiovascular disease is common.

Few textbooks and papers on nosebleed do more than mention the Little or Kiesselbach area and vessels feeding into it as the source of serious nosebleed. In 50.9% of our 106 patients who required hospitalization for severe epistaxis before 1945, this area was the source of bleeding; whereas, it was the source of bleeding in only 27.4% of 106 patients seen from 1945 through 1950. It is not surprising to those who routinely have to treat nosebleed that anterior septal bleeding can be so serious that hospital apparatus is required in its control.

About 40% of our hospitalized patients bled from the posterior portions of the nose, high or low (Table 3). The sphenopalatine artery or one of its branches seemed to be the source of about half these hemorrhages. In the other half the bleeding seemed to be venous and originated low and posterior. This is the area Woodruff called the "naso-nasopharyngeal plexus."[2]

Bleeding from high and anterior parts of the nose is rare, and in most cases it is caused from a blow on the nose. A rupture of the anterior ethmoid artery or one of its branches is usually the cause of such bleeding. It occurred in six of our cases. Trauma, incidental to repeated packing and removal prior to hospitalization, was found in those cases in which bleeding was from the turbinates or diffusely from the nasal mucous membrane.

When the treatment used at the clinic from 1930 through 1944 is compared with that used from 1945 through 1950, many similarities may be noted (Table 4). There were fewer ligations of the external carotid artery in the latter series. This probably means that the source of bleeding was localized better, and packing was more thorough.

TABLE 2.—*Age Distribution of 212 Hospitalized Patients*

Age, Yr.	Patients	%
Less than 5	5	2.4
5-14	9	4.3
15-24	11	5.2
25-34	10	4.7
35-44	31	14.6
45-54	38	17.9
55-64	53	25.0
65 and more	55	25.9
Total	212	100.0

Seventeen of our 212 patients failed to respond to conservative treatment and required ligation of the external carotid artery. In each instance the bleeding was controlled. In 2 of these 17 cases epistaxis had followed operation on the sinuses. In the remaining cases epi-

3. (*a*) Spar, A. A., and Hallberg, O. E.: Severe Epistaxis and Its Management: Report of Eleven Cases in Which the External Carotid Artery Was Ligated, Ann. Otol., Rhin., & Laryng. **56**: 141-151 (March) 1947. (*b*) Hallberg, O. E.: Nosebleed and Its Management, Mississippi Doctor **28**: 223-228 (Dec.) 1950.

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staxis occurred spontaneously. About five days after the ligation an infection developed in the wound of one patient, and a tracheotomy had to be done because of blocked airway. The patient, however, recovered rapidly, and the tracheal wound was closed after three days.

A deviation of the tongue to the left followed ligation of the left external carotid artery in one case; this disappeared in about a week. Postoperative edema around the left hypoglossal nerve was probably responsible for this complication.

TABLE 3.—*Source of Bleeding in 212 Hospitalized Patients*

Source	1930-1944 No.	1930-1944 %	1945-1950 No.	1945-1950 %
Anterior portion of the septum (Kiesselbach's area)	54	50.9	29	27.3
Sphenopalatine or nasopalatine artery	20	18.9	11	10.4
Diffuse bleeding	14	13.2	7	6.6
Turbinates	5	4.7	5	4.7
Naso-nasopharyngeal plexus	..	....	12	11.3
Anterior septal perforation	..	....	6	5.7
Behind spurs and severe septal deflections	..	....	6	5.7
Anterior ethmoid artery or vein	..	....	6	5.7
Undetermined (posterior)	13	12.3	24	22.6
Total	106	100.0	106	100.0

This patient returned a year later with another severe nosebleed. This time more blood seemed to come from the right side of the nose rather than the left. Packing did not control the bleeding. Several transfusions of blood were required, and finally the right external carotid artery had to be ligated. This procedure promptly controlled the bleeding. General examination disclosed nothing of significance. Results of blood tests, which included coagulation time and clot retraction, were within normal limits.

TREATMENT IN HOSPITAL

Each physician has his own favorite method of controlling nasal hemorrhage. The principal object is, however, to stop the flow of blood as soon as possible.

On admission to the hospital the patient should first be examined for symptoms of shock and for active bleeding. If the patient is an adult, he should be given ¼ grain (0.016 gm.) of morphine by hypodermic injection. Children should be given hypnotics, the dosage depending on the age. With close observation of the patient it is not difficult to distinguish between shock due to hemorrhage and the shock-like appearance of a patient who is nauseated from swallowing too much blood. If there is uncertainty as to the condition of the patient, transfusion of blood should be employed.

If the hemorrhage is controlled by packs inserted prior to hospitalization, the packs are left in place, and the patient is watched thereafter for recurrence of bleeding.

When active bleeding is occurring, packs are removed and the nose is cleansed with a suction apparatus under direct vision in an effort to determine the source and severity of bleeding. Cotton pledgets moistened in equal parts of 1:1,000 solution of epinephrine chloride and 10 to 20% solution of cocaine are then used to shrink the nasal mucous membranes and provide local anesthesia for any necessary instrumentation.

Macbeth [4] stated that the middle turbinate is a convenient landmark in the determination of the source of bleeding. It is usually possible to determine whether the bleeding originates from above, below, in front, or behind this structure.

Gauze 1 in. (2.5 cm.) wide and heavily covered with petrolatum (vaseline®) is probably the most useful agent available to the rhinologist for the control of nasal hemorrhage. However, many other types of packing may be satisfactory. Dixon [5] inserted pliable marine sponges piecemeal. Brown [6] and others soaked their packing material in peroxide. These packs, however, cause much discomfort to the patient.

When bleeding comes from the posterior part of the nose, it is sometimes difficult to locate its origin accurately. If bleeding is low and posterior, packing can be made easier if the posterior third of the inferior turbinate is lifted up. Occasionally the bleeding point can then be seen; if there is room enough, the area can be cauterized with the electrocoagulating point, or spot packing can be used. A laminated petrolatum gauze pack may be employed. Also useful in this area is a firm tampon slightly larger than a lead pencil about 2 to 3 in. (5.1 to 7.6 cm.) long, which can be made out of long fiber cotton. Two or three tampons can be wedged firmly between the inferior turbinate and the septum. Woodruff [2] advocated dipping the tampons in a mixture of 4% aqueous anti-

TABLE 4.—*Treatment Employed for Hospitalized Patients*

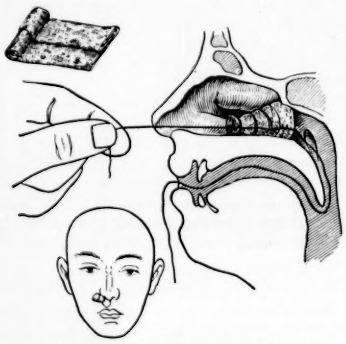
Procedure	1930-1944 No.	1930-1944 %	1945-1950 No.*	1945-1950 % of 106
Packing:				
Nasal	38	35.9	..	....
Nasal and electrocoagulation	23	21.7	13	12.3
Nasal, electrocoagulation, and transfusion	19	17.9	..	....
Spot	..	....	47	44.3
Anterior and postnasal packs	..	....	22	20.8
Blood transfusion	..	....	34	32.1
Electrocoagulation only	5	4.7	11	10.4
Ligation of external carotid artery and transfusion	11	10.4	6	5.7
Chemical cautery	7	6.6	4	3.8
Submucous resection	2	1.9	4	3.8
Injection of foreign protein	1	0.9	..	....
Ascorbic acid and vitamin K	..	....	10	9.4
Rutin and cautery	..	....	4	3.8
Ligation of anterior ethmoidal artery	..	....	1	0.9
Total patients	106	100.0	..	....

* Some patients had more than one procedure.

4. Macbeth, R. G.: Anterior Ethmoidal Haemorrhage, J. Laryng. & Otol. **62**: 42-47 (Jan.) 1948.
5. Dixon, O. J.: Epistaxis; the Use of Sterile Marine Sponges in Its Control, J. Missouri M. A. **45**: 824-825 (Nov.) 1948.
6. Brown, E. H.: Cardiovascular Epistaxis, Arizona Med. **6**: 33-36 (May) 1949.

pyrine solution, to which an equal amount of a 4% aqueous solution of tannic acid is added. The solution has a rather heavy rubbery precipitate. The tampons are inserted so that the posterior tips just reach the choanae. As an extra precaution a piece of suture material is tied to the anterior ends of the tampons and then fastened to the cheek with a piece of adhesive tape. Whichever types of packs are used, they are left in place for five to seven days. If the bleeding can be arrested completely for this period, sufficient healing takes place so that the result is permanent.

Postnasal Packing.—If anterior packing alone fails to stop the flow of blood, postnasal packing should be employed (figure). Dickie,[7] in his paper on nasal hemorrhage and its treatment, described an effective postnasal pack. A strip of gauze about 2½ to 3 in. (6.3 to 7.6 cm.) wide is folded lengthwise 1 in. (2.5 cm.) from the edge. It is then rolled up tightly until the thick end is a little less than ¾ in. (1.9 cm.) in diameter. It is bound tightly around the middle with a string with long ends. The ends



Method of applying postnasal pack.

are wound crisscross around the thinner end and tied tightly. One end of the string may be cut off to about 1 to 5 in. (2.5 to 12.7 cm.) and the other end left long. A catheter is passed through the nose and pulled out the mouth. The long end of the string can be made double and is tied to the catheter, and the pack is pulled into place. After the pack is applied, the string coming out of the mouth should not be under any pull at all. Otherwise it may cut into the soft palate.

Another complication of postnasal packs is collection of blood and possibly infection in the middle ears. This is mainly due to (1) severe bleeding and (2) wrongly applied postnasal pack. Since the type of pack suggested by Dickie has been used at the clinic, this complication has seldom occurred.

A patient with osteomyelitis of the basisphenoid with meningitis and cranial nerve palsies, resulting from nasopharyngeal abscess following the use of a postnasal pack, has been treated at the clinic.[8] In a situation of this sort, in order to maintain a steady pull the string in front should be tied to a large rubber tubing. If the bleeding still is not controlled, petrolatum gauze can be packed against the postnasal pack.

Covering the pack with petrolatum makes insertion and, later, removal easier. This postnasal pack, in my opinion, has many advantages over other types: (1) it causes less discomfort to the patient; (2) in most cases it does not block the eustachian tubes; and (3) it can be left in place for several days without too much discomfort.

In order to prevent infection, all patients who have postnasal packs in place should be given penicillin; we usually give 300,000 units daily.

Ascorbic acid and vitamin K are being given more and more as supportive measures. Neivert, Engelberg, and Pirk [9] found a high incidence of ascorbic acid and prothrombin deficiency in a series of 104 consecutive cases of epistaxis. The gratifying clinical results attending the administration of 300 mg. of ascorbic acid daily and vitamin K-like substances in some of these cases suggest that ascorbic acid and vitamin K have a definite place in the management of nasal hemorrhage. However, the follow-up data in the cases reported were unsatisfactory. At the clinic we usually give vitamin K as menadione sodium bisulfite (hykinone®) in ampules of 4.6 or 30 mg. or in tablet form as 4-amino-2-methyl-1-naphthol hydrochloride ("synkamin"). Patients with severe nosebleeds are often given ascorbic acid and vitamin K even when the examination of the blood shows normal conditions. Dr. Robb, chairman of the Section on Laryngology, Otology, and Rhinology, has suggested the use of surgical pituitary extract (pituitrin®); he has had very good results with it.

In our cases the telangiectatic lesions usually were situated on both sides of the cartilaginous portion of the septum. Large septal perforations were usually present. This also was noted by Figi and Watkins.[10] Not much in the way of permanent cure can be offered these unfortunate patients; however, protracted use of rutin has been of some benefit. It is made from buckwheat and has a tendency to strengthen the walls of the blood vessels. Figi and Watkins suggested a dosage of 300 mg. daily. After about a year of this treatment 30 or 40% show less tendency to hemorrhage. Extensive electrocoagulation and occasionally submucous resection give symptomatic relief.

Topical application of thrombin and thromboplastin is often useful for diffuse bleeding from the mucous membranes of patients who have a blood dyscrasia, especially acute leukemia and multiple myelomas. The nose of a patient who has diffuse bleeding from the membranes should not be packed because the packing will traumatize the membranes further. Occasionally, however, the bleeding is so severe that packing is necessary to save life.

Sometimes use of epinephrine in an atomizer or on small bits of cotton is beneficial. Small children who have frequent nosebleeds should be examined under general

7. Dickie, J. K. M.: Nasal Haemorrhage and Its Treatment, Canad. M. A. J. **58**: 121-126 (Feb.) 1948.

8. Spar, A. A., and Williams, H. L.: Osteomyelitis of the Basisphenoid and Basiocciput With Meningitis and Cranial Nerve Palsies as a Complication of Nasopharyngeal Packing for Control of Epistaxis; Report of a Case With Recovery, Arch. Otolaryng. **46**: 473-477 (Oct.) 1947.

9. Neivert, H.; Engelberg, R., and Pirk, L. A.: Nasal Hemorrhage; Studies of Ascorbic Acid, Prothrombin and Vitamin K, Arch. Otolaryng. **47**: 37-45 (Jan.) 1948.

10. Figi, F. A., and Watkins, C. H.: Hereditary Hemorrhagic Telangiectasia, Ann. Otol., Rhin. & Laryng. **52**: 330-341 (June) 1943.

anesthesia and the bleeding points electrocoagulated. The source of bleeding is almost always the anterior part of the septum or of the floor.

Since about 1947 the use of oxidized cellulose gauze packing has been advocated in many articles.[11] The nose, however, should not be packed tightly with it because it causes necrosis of the mucous membranes, but small amounts should be used directly over the bleeding area. Chemical cautery, especially silver nitrate, should not be used first because it prevents absorption of the oxidized cellulose.[11a]

When conservative measures fail, ligation of a main artery should be employed. Ligation of a principal artery for the control of hemorrhage from one of its branches was first performed more than 150 years ago. According to Bartlett and McKittrick,[12] who reviewed the cases of ligation of the carotid artery reported up to 1917, Abernethy [13] attempted without success to tie off the common carotid artery for hemorrhage in 1795. The first successful ligation of the common carotid artery was reported by Flemming [14] in 1803. Since that time the carotid artery has been ligated hundreds of times for a variety of conditions, including nasal hemorrhage.

Ligation of the external carotid alone has been more limited. McKnight [15] in 1926 reviewed the literature and found 17 instances of ligation of the external carotid artery up to that time. In all the hemorrhage was controlled successfully.

Goodyear [16] in 1937 and Macbeth [4] in 1948 described cases of ligation of the anterior ethmoid artery for nasal hemorrhage. Fitz-Hugh and Risher [17] in 1949 described a case in which the external carotid artery was first ligated after the usual local measures had not been successful. The hemorrhage was completely controlled with the additional ligation of the anterior ethmoid artery.

When bleeding is severe and packing has failed, either the external carotid or anterior ethmoid artery should be tied. The incision in the latter is along the eyebrow. The artery can then be tied or compressed with a silver clip. The posterior ethmoid artery is small and should not cause trouble. If necessary, it could be disrupted with electrocoagulation.

Septal bleeding behind spurs and deflections can be difficult to control. In such cases submucous resection should be performed so that the surgeon can identify the bleeding point and treat it effectively. Often submucous resection alone is enough to control the bleeding. For patients who have anterior septal perforations with crusting and repeated bleeding, a modified submucous resection with removal of exposed cartilage around the edges is the treatment of choice. Submucous resection should be done more as a preliminary treatment for severe hemorrhages in the posterior part of the nose in an effort to identify the bleeding point.

Ligation of the external carotid artery is indicated when nasal hemorrhage persists and recurs with severity, and the level of the hemoglobin and the number of erythrocytes drop steadily in spite of repeated nasal packing and transfusion of blood.

It is not safe to wait until the patient has lost so much blood that a state of shock supervenes. Bean [18] in 1937 reported that in 2 out of 300 cases of coronary occlusion the occlusion was caused by the sudden fall of blood pressure accompanying hemorrhage; in 1 of his cases spontaneous epistaxis occurred. McKinlay [19] reported a case in which coronary insufficiency was precipitated by hemorrhage from a duodenal ulcer.

Recently a patient came to the clinic because of severe nosebleed from the left side of the nose. He had been treated at home for a month with nasal packing and frequent blood transfusions. When he came to the clinic he was bleeding profusely from the posterior aspect of the left nasal passage. Further packing did not control it. The day after admission to the hospital the left carotid artery was ligated. The ligation controlled his bleeding, but he died a couple of weeks later due to multiple hemorrhages in the brain. It certainly is possible that earlier ligation could have saved this patient's life.

Blumgart, Schlesinger and Zoll [20] found that coronary occlusion was due to shock in 11 out of 450 cases. They emphasized the importance of preventing, under any circumstances, a decrease in the blood pressure in cases of coronary sclerosis.

Hagaman [21] has had much experience in ligating the external carotid artery for severe posterior nasal bleeding. This procedure immediately controlled the bleeding in all his cases.

TECHNIQUE OF LIGATION OF THE EXTERNAL CAROTID ARTERY

Ligation of the external carotid artery is a relatively simple procedure. My colleagues and I prefer an incision along the natural creases of the neck at the level of the laryngeal prominence of the thyroid cartilage. The bifurcation is exposed by blunt dissection. It should be remembered that the internal carotid artery has no branches in this area.

The external carotid artery is usually ligated between the branches of the lingual and superior thyroid arteries. After the artery is compressed, the anesthetist or the assistant checks for pulsation of the superficial temporal artery in front of the auricle. If the pulsation stops when the external carotid is compressed, the correct vessel is being selected and ligation is done.

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11. (*a*) Elsbach, E. J.: Rhinologic Use of Oxidized Cellulose Gauze, New York State J. Med. **49**: 663 (Mar. 15) 1949. (*b*) Kler, J. H.: Use of Absorbable Gauze in Otolaryngologic Practice, Arch. Otolaryng. **46**: 801-803 (Dec.) 1947. (*c*) Houser, K. M.: Oxidized Cellulose Gauze Packing for Nasal Bleeding, J. A. M. A. **132**: 143 (Sept. 21) 1946.

12. Bartlett, W., and McKittrick, O. F.: A Study of Secondary Hemorrhage Treated by Ligation of the Common Carotid Artery, Ann. Surg. **65**: 715-729 (June) 1917.

13. Abernethy, quoted by Bartlett and McKittrick.[12]

14. Flemming, quoted by Bartlett and McKittrick.[12]

15. McKnight, H.: Carotid Ligation in Epistaxis, Texas State J. Med. **22**: 271-274 (Aug.) 1926.

16. Goodyear, H. M.: Nasal Hemorrhage: Ligation of the Anterior Ethmoid Artery: Case Report, Laryngoscope **47**: 97-99 (Feb.) 1937.

17. Fitz-Hugh, G. S., and Risher, J. C.: Epistaxis; Report of a Case of Ligation of the External Carotid and Anterior Ethmoid Artery, Arch. Otolaryng. **49**: 564-565 (May) 1949.

18. Bean, W. B.: Infarction of the Heart; a Morphological and Clinical Appraisal of Three Hundred Cases. Part I. Predisposing and Precipitating Conditions, Am. Heart J. **14**: 684-702 (Dec.) 1937.

19. McKinlay, C. A.: Coronary Insufficiency Precipitated by Hemorrhage From Duodenal Ulcer, Journal-Lancet **63**: 31-34 (Feb.) 1943.

20. Blumgart, H. L.; Schlesinger, M. J., and Zoll, P. M.: Multiple Fresh Coronary Occlusions in Patients With Antecedent Shock, Arch. Int. Med. **68**: 181-198 (Aug.) 1941.

21. Hagaman, A. V.: Personal communication to the author.

SUMMARY

In 212 cases occurring from 1930 through 1950 epistaxis has been treated in the hospital by physicians of the Mayo Clinic. In about 10% of the cases trauma was the causative factor. More than 50% of the patients were 55 or more. Treatment consisted of the usual conservative procedures, packing and electrocoagulation, and, in a few cases, ligation of the external carotid artery together with supportive measures. Details in the technique of postnasal packing and ligation of the external carotid artery are given.

102 2d Ave. S. W.

VALUE AND HAZARDS OF INTRAVENOUS PROCAINE AMIDE ("PRONESTYL") THERAPY

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and
Laurence B. Ellis, Boston

Procaine amide ("pronestyl") was recently introduced as an agent for the treatment of ventricular arrhythmias. Procaine amide (*p*-amino-N-[2-diethylaminoethyl] benzamide hydrochloride) differs from procaine by the presence of the amide grouping (·CO·NH·) instead of the ester grouping (·CO·O·) present in the latter.[1] Available data indicate that this drug, unlike procaine, is not readily hydrolyzed by plasma enzymes and that plasma procaine amide levels persist for several hours rather than for a few minutes, as in the case of procaine. These data imply a longer duration of action for procaine amide than for procaine. Procaine amide, unlike procaine,[2] can be administered rather rapidly by the intravenous route to conscious unanesthetized patients without, as a rule, producing convulsions or other signs of central nervous system stimulation. In addition, it may be administered in effective antiarrhythmic doses by the oral route.[3]

Our study concerned the immediate clinical effects of intravenous procaine amide therapy; no comparison of its effects with those of procaine or quinidine was made. The purpose of this study was to evaluate the effects of intravenously administered procaine amide on cardiac arrhythmias and arterial blood pressure in an attempt to ascertain the practical usefulness of the agent. The results showed that the predominant clinical effects were (1) alteration of susceptible cardiac arrhythmias and (2) decrease in arterial blood pressure. The latter effect constituted a serious hazard.

The procaine amide hydrochloride used in this study was supplied by E. R. Squibb & Sons.

This investigation was supported in part by a research grant from the National Heart Institute, U. S. Public Health Service.

A preliminary report of the present study was presented at the meeting of the New England Cardiovascular Society, Boston, Jan. 15, 1951.

From the Thorndike Memorial Laboratory, Second and Fourth Medical Services (Harvard), Boston City Hospital, and the Department of Medicine, Harvard Medical School. Postdoctorate Research Fellow, National Heart Institute (Dr. Stearns).

1. Procaine Amide Hydrochloride—Pronestyl Hydrochloride, Report of the Council on Pharmacy and Chemistry, J. A. M. A. **144**: 1465 (Dec. 23) 1950. Brodie, B. B.; Lief, P. A., and Poet, R.: The Fate of Procaine in Man Following Its Intravenous Administration and Methods for the Estimation of Procaine and Diethylaminoethanol, J. Pharmacol. & Exper. Therap. **94**: 359-366 (Dec.) 1948. Mark, L. C.; Berlin, I.; Kayden, H. J.; Rovenstein, E. A.; Steele, J. M., and Brodie, B. B.: The Action of Procaine Amide (N'-[2-diethylaminoethyl]-*p*-aminobenzamide) on Ventricular Arrhythmias, ibid. **98**: 21-22 (Jan.) 1950.

2. Sollman, T.: A Manual of Pharmacology and Its Application to Therapeutics and Toxicology, ed. 7, Philadelphia, W. B. Saunders Company, 1948, p. 273. Kraft, K. A.: Intravenous Procaine, Canad. M. A. J. **57**: 350-353 (Oct.) 1947.

3. Unpublished data from this laboratory.

4. Ventricular tachycardia was converted to a slower supraventricular rhythm in each of three additional patients receiving oral procaine amide therapy.

METHOD

Procaine amide was administered intravenously to 33 patients with a variety of arrhythmias, both ventricular and supraventricular in nature. All diagnoses of the type of arrhythmia were made by electrocardiogram. Response to carotid sinus stimulation was, in some patients, helpful in differentiating supraventricular from ventricular tachycardias. During the period of procaine amide infusion, arterial blood pressures were measured at one to two minute intervals, and observation for electrocardiographic changes was continuous.

Of the 33 treated patients, 5 were under the age of 50 and 23 were over the age of 60. Ten patients had underlying arteriosclerotic heart disease. Fourteen patients had hypertensive heart disease associated in nine with arteriosclerotic heart disease. There were two patients with cor pulmonale, two with syphilitic heart disease, one with rheumatic heart disease, and four with heart disease of undetermined etiology. There was conclusive evidence of recent myocardial infarction in only one patient (Case 29). Twenty-one patients were in congestive heart failure at the time of procaine amide therapy.

ANTIARRHYTHMIC EFFECTS

Ventricular Tachycardia.—There were eight patients with ventricular tachycardia.[4] The results of therapy are summarized in Table 1. Conversion of ventricular tachycardia to a slower supraventricular rhythm was accomplished during intravenous procaine amide administration in six patients. It is to be noted that in Case 23 conversion was originally effected after administration of 200 mg. of the drug; however, the rhythm reverted to ventricular tachycardia after approximately 45 minutes. A second conversion then took place with an additional 140 mg. of the drug. Ventricular tachycardia did not recur subsequently with oral procaine amide therapy (Table 1).

The patient in Case 22 had intermittent ventricular tachycardia. Before treatment, the attacks of ventricular tachycardia occurred frequently and were of one to two minutes' duration. With the infusion of 500 mg. of procaine amide, the attacks of ventricular tachycardia occurred less frequently, and those noted by continuous observation of the electrocardiogram were of shorter duration. In addition, the appearance of isolated ectopic ventricular beats without ensuing ventricular tachycardia

was noted. Because of profound hypotension, responding only transiently to phenylephrine (neo-synephrine®) hydrochloride, intravenous administration of procaine amide was stopped, and 500 mg. of the oral preparation was given. One hour later, there was no evidence of ventricular irritability. The patient in Case 3 had persistent ventricular tachycardia and failed to respond to two trials of procaine amide given intravenously. On the first occasion, 750 mg. of this drug was administered. There was no conversion, but the ventricular rate slowed from 130 to 90 per minute. The slower rate was not maintained by oral doses. On the second intravenous trial, 800 mg. was administered. There was no conversion, but the slowing effect was again noted. Additional doses of the drug were not given, because of severe hypotension.

TABLE 1.—*Results of Intravenous Procaine Amide Therapy in Eight Patients with Ventricular Tachycardia*

Case	Digitalis Toxicity	Type of Ventricular Tachycardia *	Total Dose Procaine Amide, Mg.	Procaine Amide Dose to Conversion, Mg.	Effect on Ventricular Tachycardia
28	Yes	Persistent	60	60	Conversion to auricular fibrillation with conduction
1	Yes	Persistent	200	200	Conversion to auriculoventricular tachycardia
23	Yes	Persistent	340	200	Conversion to auricular fibrillation with conduction. Reversion within 45 minutes. Second conversion after additional infusion of 140 mg. of procaine amide
29	No	Persistent	800	800	Conversion to sinus rhythm
3	No	Persistent	750	...	No conversion. Slower ventricular rate. (Procaine amide, 500 mg. orally every 4 hours for 3 doses, without effect)
			800	...	No conversion. Slower ventricular rate
18	No	Intermittent	400	250	Conversion to sinus rhythm
33	No	Intermittent	1,500	240	Conversion to sinus rhythm
22	Yes	Intermittent	500	...	Attacks of ventricular tachycardia less frequent and of shorter duration. Appearance of isolated ventricular ectopic beats

* The known duration of ventricular tachycardia prior to therapy was more than eight hours in each patient. The paroxysms of intermittent tachycardia in this group of patients recurred within intervals of seconds to a few minutes and varied in duration from a few seconds to several minutes.

Conversion of ventricular tachycardia was subsequently accomplished in this patient with oral quinidine therapy. Shortly after conversion, the patient died.

Ectopic Ventricular Beats.—Frequent ectopic ventricular beats, often from multiple foci, were completely eliminated in 8 of 12 patients and were significantly decreased in number in 3 during administration of the drug and for varying periods thereafter. The high incidence of digitalis toxicity in this group of patients is noted in Table 2. It is of interest that there were two patients in whom digitalization with customary doses or adequate mercurial diuresis after digitalization was accomplished without evidence of ventricular irritability only with adjuvant procaine amide administration. In spite of electrocardiographic evidence of digitalis toxicity prior to procaine amide therapy, additional digitalis and mercurial diuretic drugs were administered to both of these patients, with clinical improvement of moderately severe congestive failure. The omission of orally administered procaine amide on at least two occasions in each of these patients was followed by the reappearance of ectopic ventricular beats.

TABLE 2.—*Results of Intravenous Procaine Amide Therapy in Twelve Patients with Frequent Ectopic Ventricular Beats*

Case	Digitalis Toxicity	Total Dose Procaine Amide, Mg.	Effect on Ectopic Ventricular Beats	No. of Ectopic Foci	
				Before Therapy	After Therapy
30	Yes	60	Eliminated	1	0
32	Yes	100	Eliminated	1	0
6	Yes	160	Eliminated	3	0
15	Yes	300	Eliminated	2	0
8	Yes	375	Eliminated	2	0
25	Yes	400	Eliminated	2	0
24	Yes	400	Eliminated	1	0
27	No	850	Eliminated	2	0
4	Yes	400	Decreased	2	1
9	?	450	Decreased	3	3
26	No	390	Decreased	1	1
7	No	666	Unchanged	2	2

Auriculoventricular Nodal Tachycardia.—Of four patients with auriculoventricular nodal tachycardia, conversion was accomplished in two and transiently in a third. There was one patient (Case 8) with auricular fibrillation, auriculoventricular nodal tachycardia, and frequent ectopic ventricular beats. With the infusion of 100 mg. of procaine amide the ectopic ventricular beats were eliminated. Following the administration of 375 mg. of the drug, the patient's blood pressure fell from a control level of 94/62 to 38/0. There was loss of consciousness associated with convulsive movements. Phenylephrine hydrochloride, 5 mg., was given intravenously, but the pressure continued to fall to 22/0. At this time, 0.4 mg. of epinephrine was administered intravenously. The blood pressure promptly rose to 122/72, and the electrocardiogram revealed ventricular tachycardia, which lasted for only one minute and subsided spontaneously. The final rhythm was auricular fibrillation with auriculoventricular nodal tachycardia. The patient recovered consciousness. Death, several days later, was the result of his chronic pulmonary disease (Table 3).

TABLE 3.—*Results of Intravenous Procaine Amide Therapy in Four Patients with Auriculoventricular Nodal Tachycardia*

Case *	Digitalis Toxicity	Total Dose Procaine Amide, Mg.	Effect
2	Yes	300	Conversion to auricular fibrillation with conduction
13	Yes	300	Conversion to auricular fibrillation with conduction
6	Yes	160	Conversion to sinus rhythm with conduction for about 1 hour Reversion to slower auriculoventricular nodal tachycardia
8	Yes	375	No effect

* In cases 6 and 8 ectopic ventricular beats were eliminated during procaine amide infusion.

Auricular Fibrillation with Auriculoventricular Conduction and Ventricular Rates Over 115 per Minute.—Of five patients in this group, auricular fibrillation [5] per-

5. Auriculoventricular conduction in these patients contrasts with that of other patients in whom auricular fibrillation was associated with auriculoventricular nodal or ventricular tachycardia.

sisted in all, and rapid ventricular rates were not altered in four after administration of from 400 to 1,000 mg. of procaine amide. In one patient (Case 20), after the administration of 400 mg. of procaine amide and coincident with severe hypotension, the electrocardiogram revealed persistence of auricular fibrillation with auriculoventricular conduction and marked slowing of the ventricular rate (from 130 to approximately 50 per minute). In addition, there were short periods of auriculoventricular nodal rhythm. Whether hypotension with secondary cardiac effects or the direct effect of procaine amide accounted for the change in the ventricular rate and in the rhythm cannot be ascertained.

TABLE 4.—*Results of Intravenous Procaine Amide Therapy in Seven Patients with Auricular Fibrillation Associated with Auriculoventricular Nodal or Ventricular Tachycardia*

Case	Total Dose Procaine Amide, Mg.	Effect on Auricular Fibrillation	Effect on Associated Arrhythmia
2	300	No change	Auriculoventricular nodal tachycardia converted to auricular fibrillation with conduction
13	300	No change	Auriculoventricular nodal tachycardia converted to auricular fibrillation with conduction
8	375	No change	Auriculoventricular nodal tachycardia not effected. Ectopic ventricular beats eliminated
23	340	No change	Ventricular tachycardia converted to auricular fibrillation with conduction
28	60	No change	Ventricular tachycardia converted to auricular fibrillation with conduction
18	400	Sinus rhythm	Ventricular tachycardia converted to sinus rhythm
29	800	Sinus rhythm	Ventricular tachycardia converted to sinus rhythm

Auricular Fibrillation Associated with Auriculoventricular Nodal or Ventricular Tachycardia.—Auricular fibrillation was associated with auriculoventricular nodal or ventricular tachycardia in seven patients already considered. Auricular fibrillation persisted in five of these patients. There were two patients (Cases 18 and 29) who were known to have had auricular fibrillation prior to the onset of ventricular tachycardia. The rhythm present in each of these two patients after procaine amide administration was normal sinus rhythm (Table 4).

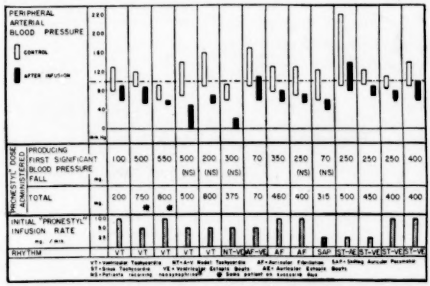
TABLE 5.—*Results of Intravenous Procaine Amide Therapy in Thirteen Patients with Miscellaneous Supraventricular Tachycardias*

Case	Total Dose Procaine Amide, Mg.	Arrhythmia Treated	Effect
12	315	Rapid shifting auricular pacemaker	Slowed
21	550		Slowed
(7)	666		No change
5	500	Ectopic auricular beats	Decreased number
(15)	400		
17	700	Auricular flutter	Slowed (no increase in auriculoventricular block)
31	550	Auricular flutter	Unchanged (increase auriculoventricular block)
(6)	160	SAT *	No change
(26)	390	SAT	No change
(9)	450	SAT	No change
11	1,000	SAT	No change
(22)	500	SAT	Slowed
(24)	400	SAT	Slowed

( ) = Patient already considered.
* SAT = sinonuricular tachycardia.

Miscellaneous Supraventricular Tachycardias.—While intravenously administered procaine amide appeared to have some effect on a variety of supraventricular arrhythmias, as noted in Table 5, this effect was usually transient and appeared to be of some therapeutic significance in only a few patients (Table 5).

Other Electrocardiographic Changes Caused by Procaine Amide Infusion.—Alterations in the electrocardiogram other than those related to conversion of arrhythmias or to changes in rate were produced by intravenous administration of procaine amide in 5 of 33 patients and were presumably indicative of toxicity. In four patients (Cases 25, 24, 14, and 3), QS intervals were prolonged by 0.02 to 0.04 second during administration of 300, 400, 460, and 800 mg. of the drug (from 0.08, 0.10, 0.12, and 0.20 second to 0.11, 0.13, 0.14, and 0.24 second respectively). Repeated short periods of ventricular asystole of not more than one second's duration occurred transiently in one patient (Case 13), who had auricular fibrillation with a ventricular rate of approximately 100, one minute after conversion of auriculoventricular nodal tachycardia with 200 mg. of procaine amide. Significant prolongation of QT intervals or decrease in voltage of QRS or T waves was not noted. The drug was used without obvious deleterious effects in a few patients with aberrant conduction, bundle branch block, and complete heart block.


PERIPHERAL ARTERIAL BLOOD PRESSURE
CONTROL
AFTER INFUSION
PRONESTYL DOSE
PRODUCING FIRST SIGNIFICANT BLOOD PRESSURE FALL
TOTAL
INITIAL "PRONESTYL" INFUSION RATE
RHYTHM
100 500 550 500 (NS) 200 (NS) 300 (NS) 70 350 250 (NS) 70 (NS) 250 250 250 400
200 750 800 500 800 375 70 460 400 315 500 450 400 400
VT VT VT VT VT INT-WAV-VEL AF AF SAF ST-REST-VE ST-REST-VE ST-REST-VE

Effects of procaine amide ("pronestyl") on blood pressure of 13 patients.

HYPOTENSIVE EFFECTS

A marked fall in systolic and diastolic arterial blood pressure associated with untoward signs and symptoms occurred in 13 of 33 patients (see chart). The untoward effects included weakness and malaise (in six patients), profuse sweating (in four), vomiting (in three), thirst (in two), convulsive movements (in two), and loss of consciousness (in one patient). In 10 additional patients, blood pressure falls greater than 20 mm. Hg systolic (average 29± 6.5 mm. Hg) in all, and in 6 of these 10, diastolic falls of greater than 15 mm. Hg (average 22± 4.2 mm. Hg) occurred without untoward signs or symptoms, during procaine amide infusion. There was no apparent relation between the incidence of blood pressure fall and the age of the patient or type of underlying heart disease. Hypotension occurred in patients with and without congestive heart failure.

The chart illustrates that blood pressure fall, often to levels considerably below 100 mg. Hg systolic, occurred

in patients with relatively high, normal, and low control levels, and in patients with ventricular and supraventricular tachycardia. Blood pressure fall occurred with procaine amide infusion rates of 25, 50, and 100 mg. per minute in response to total doses averaging less than 500 mg. The duration of procaine amide-induced hypotension varied from a few minutes to several hours. In five of the patients noted in the chart, intravenous administration of phenylephrine hydrochloride in doses of 2 to 5 mg. successfully counteracted procaine amide-induced hypotension, at least temporarily. However, hypotension persisting after administration of procaine amide, in spite of phenylephrine therapy, contributed to the death of one patient. It should be mentioned that this patient (Case 20) with known hypertensive arteriosclerotic heart disease had severe hypotension, below 100 mm. Hg systolic, for 25 minutes before phenylephrine was administered.

There was no significant correlation between abolition of ventricular tachycardia, ectopic ventricular beats, or auriculoventricular nodal tachycardia and antecedent drug-induced blood pressure fall. Of six patients in whom conversion of ventricular tachycardia was accomplished during procaine amide infusion, only one showed a prompt rise in blood pressure following the conversion. Significant hypotension occurred in one additional patient (Case 33) not included in the chart. Abolition of intermittent ventricular tachycardia was accomplished in this patient after administration of 240 mg. of procaine amide, infused at a rate of 40 mg. per minute. However, because of the persistence of ectopic ventricular beats, procaine amide infusion was continued by intravenous drip at a slightly slower rate. By the 30th minute, blood pressure had fallen from a control level of 70/50 to 60/40. The latter level persisted and appeared to be well tolerated for the next 20 minutes. At the 50th minute blood pressure was unobtainable and the patient was observed to be pallid and sweating profusely. At this time the patient had received 1,200 mg. of procaine amide. After the administration of 5 mg. of phenylephrine subcutaneously, the pressure rose to 60/50. Procaine Amide infusion at approximately 10 mg. per minute was continued to a total dose of 1,500 mg. By the second hour after the start of therapy with the latter drug, the blood pressure was stabilized at 110/60.

PROCAINE AMIDE IN BRONCHIAL ASTHMA

Procaine amide was administered to four patients with a known history of bronchial asthma. Two of these, treated during asthmatic attacks with intravenously administered procaine amide, suffered profound hypotension associated with convulsive movements. In a third patient, an acute asthmatic attack developed after the administration of 390 mg. of the drug, and in the fourth patient, an acute asthmatic attack occurred approximately 90 minutes after oral administration of 750 mg.

COMMENT

It is important to emphasize that while the hypotensive effect of procaine amide has been noted by others,[6] the intravenous administration of 100 to 200 mg. per minute (that is, 1 to 2 cc. of undiluted procaine amide per minute) to a total dose of no more than 1,000 mg., recommended for clinical use by the manufacturers, appears to be excessive. In the present study, rates of administration between 25 and 100 mg. per minute to total doses between 70 and 800 mg. produced significant systolic and diastolic blood pressure falls. Furthermore, in spite of additional lowering of infusion rates below 25 to 100 mg. per minute, and in spite of periodic cessation of drug administration for several minutes at a time, hypotension, usually with symptoms of collapse, warranted complete cessation of drug administration in 40% of the patients after total doses averaging less than 500 mg. had been given. The mechanism of procaine amide-induced blood pressure fall was not revealed by available data.

While drug-induced blood pressure fall was a serious hazard, intravenously administered procaine amide was effective in the management of ventricular tachycardia, ectopic ventricular beats, and auriculoventricular nodal tachycardia. Furthermore, the combination of intravenous and oral procaine amide therapy proved to be highly effective in the management of ventricular and auriculoventricular nodal arrhythmias attributed to digitalis toxicity. Although a specific study of the effects of oral procaine amide administration is not yet complete in this laboratory, marked hypotension attributable to the oral preparation has not been encountered in any of more than 40 treated patients. In a few patients nausea and vomiting developed and occasionally "light headedness" or "heavy headedness." Significant prolongation of QS and QT intervals in two patients and development of complete heart block from incomplete heart block in one patient while receiving maintenance oral procaine amide therapy has been observed.

SUMMARY AND CONCLUSIONS

Procaine amide ("pronestyl") was administered intravenously to 33 patients with ventricular and/or supraventricular arrhythmias. Arterial blood pressure and electrocardiographic changes were studied. Initial procaine amide infusion rates between 25 and 100 mg. per minute were employed. Infusions were slowed or stopped when indicated by hypotensive responses or conversion of arrhythmias.

Ventricular tachycardia was abolished in seven of eight patients. Multiple ectopic ventricular beats were eliminated in 8 of 12 patients and decreased in 3. Auriculoventricular nodal tachycardia was abolished in three of four patients. Effective drug doses ranged from 60 to 800 mg. Thirteen of 14 patients with ventricular or auriculoventricular nodal arrhythmias attributed to digitalis toxicity responded to intravenous administration of procaine amide and were generally well controlled by subsequent oral procaine amide therapy. Supraventricular arrhythmias, other than nodal tachycardia, were affected less strikingly than ventricular arrhythmias.

Systolic and diastolic blood pressure falls associated with signs and symptoms of collapse occurred in 14 of 33 patients. Blood pressure falls, often to levels considerably below 100 mm. Hg systolic, were not related to control blood pressure levels or to the type of arrhythmia

6. Kinsman, J. M.; Clay, H. L.; Coe, W. S., and Best, M. B.: Procaine Amide (Pronestyl) in the Treatment of Disorders of Cardiac Rhythm: A Preliminary Report, J. Kentucky M. A. **48**: 509-511 (Nov.) 1950. Newman, P. J., and Clark, B. B.: A Comparative Study of Pharmacological Properties of Procaine and Procaine Amide, Federation Proc. **9**: 304-305 (March) 1950. Elek, S. R.: Practical Recognition and Treatment of Cardiac Arrhythmias, Arizona Med. **7**: 21-27 (Oct.) 1950.

present. Blood pressure fall occurred with procaine amide infusion rates of 25, 50, and 100 mg. per minute in response to total doses averaging less than 500 mg. Phenylephrine (neo-synephrine®), employed in six patients, successfully counteracted procaine-amide induced hypotension in five.

Of four patients with bronchial asthma treated with procaine amide, two suffered profound hypotension associated with convulsive movements and in two (one after oral administration of the drug) acute asthmatic attacks developed.

Electrocardiographic changes presumably indicative of toxicity (prolongation of QS intervals) were rarely produced by intravenous procaine amide therapy. Repeated blood pressure determinations are more important than the electrocardiogram as a guide to safe procaine amide infusion rates and are essential in the proper clinical use of this drug.

The present results indicate that procaine amide infusion rates should be less than 100 mg. per minute. Because significant hypotension was produced in spite of slow procaine amide infusion rates, the drug should be administered by this route only to patients with susceptible arrhythmias when immediate conversion is highly desirable.

Heart Station, Boston City Hospital (Dr. Stearns).

METHOD OF INCREASING SENSITIVITY OF GLUCOSE TOLERANCE TEST

Herbert Berger, M.D., Staten Island, N. Y.

It is axiomatic that early discovery of disease is desirable. Diabetic-detection drives have been launched in an effort to discover early cases of this disease so that treatment can be instituted before dangerous complications occur. Since there is a definite familial tendency in this disease, it has been our custom to examine all siblings of diabetics under treatment at the clinic. Occasionally, we have discovered an unsuspected case, but, even more frequently, we have found such relatives normal by present testing methods, only to discover some years later that they were diabetics. On several occasions such discovery took place only when a serious complication of the disease appeared. Consequently, we have performed glucose tolerance tests on all close relatives over the age of 50 of diabetics in a further effort to discover early diabetes. While these efforts were slightly more salutary, there were still many patients with normal tests who subsequently developed diabetes.

Since potent active adrenal cortical extracts and corticotropin (ACTH) have become available, it has been observed that in many persons these substances are diabetogenic. This has rarely been of great clinical moment, but in the presence of preexisting diabetes the use of cortisone or of corticotropin has enormously aggravated the diabetic state. For example, one of our diabetics with rheumatoid arthritis required an increase in insulin from 10 to 60 units per day during the administration of 100 gm. of cortisone daily. Therefore, it seemed reasonable to suppose that, since cortisone was so diabetogenic, this material might serve to increase the sensitivity of the glucose tolerance test and thereby make the earlier detection of potential diabetics feasible.

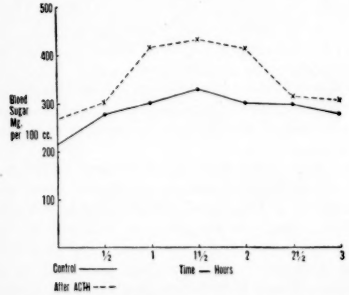


Chart 1.—Effect of corticotropin on the glucose tolerance tests of group *A*, known diabetics (composite of 12 cases).

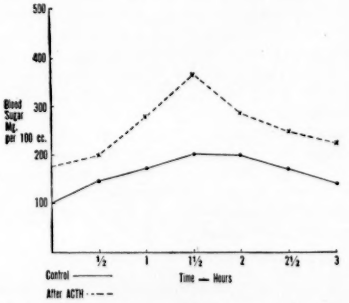


Chart 2.—Effect of corticotropin on the glucose tolerance tests of group *B*, siblings of known diabetics (composite of 14 cases).

Method.—Each patient was given two glucose tolerance tests. The first followed the usual technique in that 100 mg. of glucose was given by mouth to the fasting patient. Blood sugar determinations were made at 30 minute intervals for three hours. The second test was

From the Medical Service of the Berger Clinic, Richmond Memorial Hospital, and U. S. Public Health Hospital, Staten Island.

Medical Director of the Berger Clinic, Chief of Medicine at Richmond Memorial Hospital, Consultant in Medicine at U. S. Public Health Hospital, Staten Island (Marine Hospital).

Dr. Anna Tendlau and Miss Eunice Miles supervised the tests done at the Richmond Memorial Hospital. Those at the U. S. Public Health Service Hospital (Marine Hospital) were done by Drs. Charles Naegel, Frederick Regan, and Nicholas Gallucci under the direction of Dr. Alfred Doerner, Chief of the Medical Service.

identical, except that the patient received 100 mg. of corticotropin subcutaneously one hour before the test. In this way each patient would serve as his own control. The patients studied were divided into four groups as follows:

Group A. Known diabetics over age 50—12 patients.

Group B. Fourteen siblings over age 50 of known diabetics.

Group C. Patients over the age of 50 without diabetes or a diabetic family history—18 patients.

Group D. Same as Group C, but under age of 30—six patients (to rule out unknown possible potential diabetics in Group C).

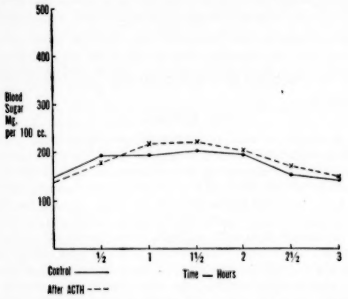


Chart 3.—Effect of corticotropin on the glucose tolerance tests of group *C*, nondiabetics (composite of 18 cases). It can be noted that corticotropin does increase the levels moderately, but not to a significant extent.

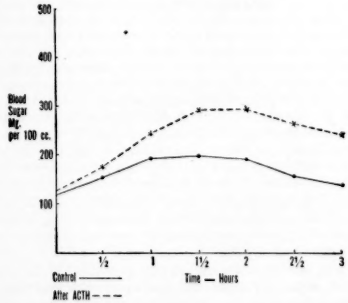


Chart 4.—Effect of corticotropin on the glucose tolerance test of one person in group *C*, a patient with a positive reaction.

Definition.—A positive test was one in which there was (in the corticotropin test) a failure of the blood sugar to return to normal in three hours and/or an increase in the intermediate blood sugar determinations over the figures obtained in the control test without corticotropin.

Results.—The tests of the Group A subjects, 12 known diabetics, all were positive.

The Group B subjects, 14 siblings of known diabetics, all had positive tests in that the blood sugar failed to return to normal in three hours, and the intermediate levels were higher.

The Group C subjects, 18 patients without diabetes or a diabetic family history, all had negative tests, except for one patient with a positive test.

In Group D, one of the six normal persons under age 30 had a positive test in that the intermediate blood

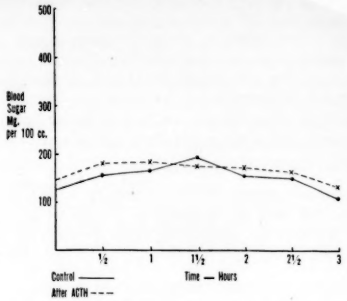


Chart 5.—Effect of corticotropin on the glucose tolerance tests of group *D*, young nondiabetic patients (composite of 6 cases).

sugars were all higher with corticotropin than without it. However, the three-hour sample was normal (i. e., the same as at the onset of the test).

COMMENT

It would seem that the siblings over 50 years old of diabetics (Group B), even though their urinalyses and glucose tolerance tests are normal, are potentially diabetics, since the 14 patients tested gave uniformly positive tests with corticotropin. Only the passage of time will verify this hypothesis. Needless to say, they will be followed for as many years as possible to determine whether or not clinical diabetes will eventually ensue.

Since corticotropin is a diabetogenic hormone, it was not surprising to see the uniform increase in the blood

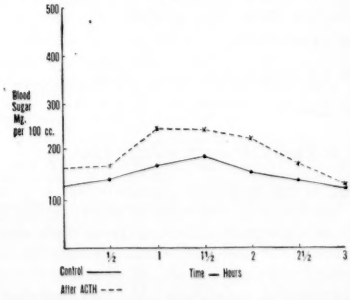


Chart 6.—Effect of corticotropin on the glucose tolerance test of one person in group *D*, a young nondiabetic patient with a positive test.

sugar levels in Group A of known diabetics. Since these glucose tolerance tests were positive without the corticotropin, its addition merely raised the blood sugar levels.

One of our 50-year-old normal control subjects (Group C) had a markedly positive test. This suggests that he may be a potential diabetic despite a negative

family history. Time will tell. However, since this age group is more prone to diabetes, it was later decided to introduce Group D, consisting of younger patients who would be less likely to be clinical diabetics since all were under 30 years of age. However, to our surprise, one of this group gave a partially positive test, i. e., the blood sugar rose 80 points higher with corticotropin, although it did return to normal in three hours. No wholly satisfactory explanation is offered for this bizarre result. It may be a weakness in the test, or this young man, under treatment for a fractured femur, may be undergoing a stress situation or be a potential diabetic, too. Efforts will be made to follow him as well.

SUMMARY

These results suggest that the sensitivity of the glucose tolerance test may be increased by the use of corticotropin. We have not proved this point. Perhaps we can do that with appropriate follow-ups 5 to 10 years hence.

CONCLUSIONS

1. The administration of 100 mg. of corticotropin prior to a standard glucose tolerance test increased the blood sugar level determinations of a group of siblings of known diabetics, as well as those of the diabetics themselves.

2. Except in two instances, the corticotropin did not affect the curves of normal persons without a family history of diabetes.

3. These findings suggest that corticotropin administered before a standard glucose tolerance test may reveal potential diabetics not discoverable by other means.

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CLINICAL NOTES

MENINGITIS DUE TO LISTERIA MONOCYTOGENES

REPORT OF TWO CASES

Felix G. Line, M.D.
and
William B. Cherry, Ph.D., Knoxville, Tenn.

Meningitis due to Listeria monocytogenes is a rare disease. The first cases were reported by Burn [1] in 1936. Kaplan,[2] in a review of the literature to 1945, stated that the number of cases from which this organism had been isolated and identified was 23, of which 13 were cases of meningitis. Handelman and others [3] reported a case with recovery in a 6-week-old infant using penicillin and sulfadiazine. Martin and others [4] reported the case of a 57-year-old man in France who died despite penicillin and sulfonamide therapy. Van Driest [5] and Slooff [6] in the Netherlands reported two cases in newborn infants both of whom recovered after receiving penicillin and sulfadiazine. A 3-week-old infant was treated successfully by Beute and his colleagues [7] in the Netherlands, using sulfadiazine. Stanley [8] in Australia isolated L. monocytogenes postmortem from the cerebrospinal fluid of a 79-year-old woman. A 32-year-old male was treated successfully by Berry [9] with penicillin, sulfadiazine, and streptomycin. Thus, there have been 20 reported cases to date.

We wish to report a fatal case in a newborn infant and a second case in a newborn infant treated successfully using aureomycin and penicillin as the principal treatment. To our knowledge, this is the first reported case of L. monocytogenes meningitis successfully treated with aureomycin.

CASE REPORTS

CASE 1.—R. E., a white female infant, was born at St. Mary's Hospital on Oct. 1, 1950. The pregnancy and delivery were normal. The infant developed thrush on Oct. 5 and was isolated for the remainder of her hospital course. This infant and the infant whose case is reported below were in the large nursery together for a period of 24 hours and were cared for by the same nurses during this time. The mothers of both infants occupied adjoining private rooms and shared a common bathroom between them. The infant was discharged from the hospital on Oct. 8 at which time the examination showed no abnormality. She was readmitted to the hospital on Oct. 12 with a history of rapid breathing and absence of crying for a period of 24 hours. She was said to have had intermittent vomiting and a few loose stools since dismissal from the hospital. The family lived on a farm and came into contact with farm animals.

Rectal temperature was 103 F. The infant was acutely ill, had shallow and rapid respirations, was slightly cyanotic, and would not cry when stimulated. There were crepitant rales anteriorly and posteriorly in the left part of her chest. There was moderate dehydration. The throat showed intense hyperemia. On the following day the fontanel was tense and the head was retracted.

Lumbar puncture on Oct. 13 revealed about 10 cc. of cloudy, greenish-colored fluid under increased pressure. The white cell count on the spinal fluid showed 12,600 per cubic millimeter with 74% polymorphonuclear leucocytes and 26% lymphocytes; sugar was 33 mg. per 100 cc.; chlorides 770 mg. per 100 cc.; protein was 400 mg. per 100 cc. A few gram-positive rods were seen on direct smear. Culture subsequently revealed L. monocytogenes. The white blood cell count was 20,600 per cubic millimeter with 62% polymorphonuclear leucocytes, 28% lymphocytes, and 10% monocytes. Urinalysis showed albumin (3+), but was otherwise negative.

Treatment on admission consisted of penicillin, 30,000 units every three hours, continuous oxygen, and hypodermoclyses to correct the dehydration. On Oct. 13, following the lumbar puncture, sulfadiazine 5 grains (0.30 gm.) every four hours and dihydrostreptomycin, 50 mg., every three hours were administered.

The initial temperature of 103 F. fell to 99.6 F. during the first 24 hours where it remained until death. The respirations improved slightly but the cyanosis became worse. After lumbar puncture on Oct. 13, the patient was transferred to the contagious unit of Knoxville General Hospital, but she died en route. Postmortem examination was not granted.

Case 2.—C. D., a white girl, was born at St. Mary's Hospital Oct. 3, 1950. The pregnancy, delivery, and neonatal course were entirely uneventful, and the infant was discharged home on Oct. 7, 1950. Physical examination at that time revealed no abnormalities. On Oct. 9, the mother noted that the infant was more irritable than previously and on the following day during the bath, there was a sudden attack of cyanosis. Respirations ceased for a few minutes and artificial respiration was given by a neighbor. The color returned to normal in about five minutes

Dr. W. R. Cross gave permission to report the case of R. E.
Consultant in Bacteriology, St. Mary's Memorial Hospital (Dr. Cherry).
Dr. George S. Mahon, Pathologist, aided this study by making available to us the facilities of the pathological laboratories of St. Mary's Memorial Hospital.
Our identification of the culture of patient C. D. was confirmed by Dr. Martha K. Ward, Communicable Disease Center, United States Public Health Service, Chamblee, Ga.

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and the infant was taken back to the hospital, where she was readmitted.

Rectal temperature was 101.2 F. The infant was acutely ill, extremely irritable, and had a jerky type of respiration. The slightest stimulation caused a shrill cry. The fontanel was not bulging and the neck and back were not stiff. There was a transient upward nystagmus bilaterally.

Lumbar puncture on admission revealed grossly cloudy and xanthrochromic fluid under normal pressure. The white cell count on the spinal fluid was 2,641 per cubic millimeter with 76% polymorphonuclear leucocytes and 24% lymphocytes; sugar was 20 mg. per 100 cc.; chlorides, 621 mg. per 100 cc.; protein, 300 mg. per 100 cc. A smear and gram stain of the spinal fluid revealed no organisms. Subsequent culture of the spinal fluid showed a gram-positive bacillus which later was identified as L. monocytogenes. A repeat lumbar puncture on the third day of the illness revealed on culture a gram-positive bacillus, but four subsequent punctures were negative on smear and culture. The spinal fluid sugar gradually returned to normal over a three-week period, but the protein was still 170 mg. per 100 cc. three weeks after the onset of the illness.

An x-ray of the chest on admission was negative. The white blood cell count on admission was 22,550 per cubic millimeter, 10,250, two days after admission and 9,500, 11 days after admission. The red blood cell count on admission was 5,250,000 and remained within normal limits throughout the illness. Hemoglobin was 15.5 gm. and remained normal. All urinalyses were negative.

After the lumbar puncture, the infant was transferred to the contagious unit of Knoxville General Hospital. Penicillin, 50,000 units every three hours, chloramphenicol, 50 mg. every three hours, and dihydrostreptomycin, 50 mg. every six hours, were administered. Because of the critical condition of the patient, it was decided on the second day to increase the penicillin to 100,000 units every three hours and to begin sulfadiazine by mouth, 2 grains (0.12 gm.) as the first dose, followed by 1 grain (60 mg.) every six hours. By mistake, the cerebrospinal fluid was reported positive for H. influenzae and one dose of 25 mg. of streptomycin was given intrathecally. However, by the third day the mistake was corrected, and the culture was reported positive for L. monocytogenes. On Oct. 13, the sensitivity of the organism to the various drugs was reported with the following results: "very sensitive" to aureomycin, "sensitive" to penicillin, "moderately sensitive" to chloramphenicol, and "resistant" to dihydrostreptomycin. A later test of the sensitivity of the organism to sulfadiazine revealed that growth was not inhibited to 100 mg. per 100 cc. On Oct. 13, chloramphenicol was discontinued, and aureomycin, 100 mg., was given as the first dose, followed by 50 mg. every three hours. On Oct. 15, the dihydrostreptomycin was discontinued, and on Oct. 17, the sulfadiazine was discontinued. The sulfadiazine blood level on Oct. 13 was 13 mg. per 100 cc. Penicillin therapy was discontinued on Oct. 24 after this drug had been given for 14 days. The dosage of aureomycin was reduced to 25 mg. every three hours on Oct. 19, and was discontinued on Nov. 2 after this drug had been given for 20 days.

The temperature of 101.4 F. gradually subsided during the first 48 hours and was normal throughout the remainder of hospitalization. During the first four days the infant was acutely ill, was extremely drowsy, nursed very poorly, tended to lie in opisthotonos position, and at times appeared quite rigid. After the fourth day, she became more alert, but her eyes tended to rove aimlessly for a week longer. The cry then became stronger and she nursed more vigorously. Vomiting became a troublesome symptom on Oct. 17, but this was considered a side effect of the aureomycin. After reducing the dosage the severity of the vomiting decreased.

The weight on admission was 6 lb. 10 oz. (3,004 gm.), on Oct. 20 was 6 lb. 4 oz. (2,835 gm.), and on discharge from the hospital (Oct. 28) was 6 lb. 11 oz. (3,032 gm.). Since leaving the hospital there has been a steady weight gain and at the age of 10 weeks the weight was 12 lb. 1 oz. (5,471 gm.). There are no apparent neurological changes other than a slight downward deviation of the right eye and at times a fine vertical nystagmus. The state of nutrition is good, and growth has been unusually rapid.

BACTERIOLOGY

Isolation.—Aliquots of the sediment of the centrifuged spinal fluids were cultured on blood agar, chocolate agar, and in brain-heart infusion broth both in air and in an atmosphere of increased carbon dioxide, i. e., in a candle jar. Moderately heavy growth was obtained in all cultures under both conditions. Direct microscopic examination of the spinal fluid sediment revealed the presence of small numbers of organisms with the morphology of Listeria in one case only (R. E.). Subcultures were prepared by fishing well-isolated colonies from the blood plates to brain-heart infusion agar slants. Subsequently, these cultures were replated and single colonies selected for further study. All bacteriological work was carried out with the latter cultures.

Morphology.—The bacteria obtained in pure culture from the spinal fluids of both infants were gram-positive rods with rounded ends. The width of the rods was about 0.5 μ and they varied in length from 0.5 to 2.0 or 3.0 μ. They exhibited the characteristic tendency of many bacteria of the family Corynbacteriaceae to arrange themselves in parallel groups; many pairs of bacteria remained attached to each other at sharp angles after cell division. There was little tendency for the organisms to stain irregularly even with Löffler's alkaline methylene blue. Spores were not produced and capsules were not seen under the cultural conditions used. The bacteria were not acid fast. In older cultures, especially in broth, there was some tendency toward formation of chains. Characteristic motility was apparent in semisolid agar at 37 C. in the form of sluggish spreading away from the line of stab of the inoculum into the medium. Observations of eight-hour broth cultures in hanging drop preparations showed the organisms to be motile and to have a definite end-over-end rolling motion.

Physiology.—All cultures grew well on blood agar, chocolate agar, and brain-heart infusion media. After 24 hours on blood agar the colonies were gray, flat with somewhat irregular margins, and 1 to 2 mm. in diameter. No hemolysis was apparent until the colony was scraped away from the agar surface. This revealed a zone of beta hemolysis beneath the colony and corresponding in size to that of the colony. Growth occurred both at 37 C. and at 22 C.

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The two cultures studied gave identical reactions when inoculated into test media consisting of a proteose-peptone base medium to which was added sufficient amounts of each substrate to give a final concentration of 0.5%. The base medium was tubed and sterilized while the substrates were sterilized separately in 10% concentrations by autoclaving at 117 C. for 12 minutes. All fermentation tests were incubated at 37 C. for 24 hours, at which time the first readings were made and then reincubated and read periodically until the final reading on the 12th day. Under these conditions the following results were obtained:

Glucose, salicin, xylose, and maltose gave prompt and definite acid production.

Dextrin, rhamnose, inulin, galactose, lactose, and glycerol either gave an initial acidity which reverted to alkalinity after about one week or gave a permanent slight acid reaction.

Sucrose, dulcitol, mannitol, inositol, and arabinose were not fermented.

There was no evidence of gas production in any of the above media.

Additional biochemical tests were carried out with the following results: Litmus milk was rapidly reduced near the bottom of the tube while some acidity developed near the top. No coagulation or precipitation of milk proteins was evident. No further change occurred except that the reduced litmus became reoxidized after several days. Nutrient gelatin was not liquefied after 12 days at 37 C., although growth of the organisms was evident. The methyl red test was positive after 48 hours but the production of acetyl-methyl-carbinol could not be demonstrated. Nitrates were not reduced to nitrites; indole and hydrogen sulfide were not formed; catalase was produced.

Susceptibility to Antibiotics and Sulfadiazine.—The routine method which is used in this laboratory to determine relative susceptibility of bacteria to antibiotics consists of placing tablets of standard amount of each antibiotic on the surface of previously inoculated blood plates and placing in the refrigerator for about one hour. The plates are then incubated for 24 hours at 37 C. and readings of the relative sensitivities of the bacteria to the antibiotics are made. This procedure is not very accurate insofar as an absolute determination of susceptibility is concerned but is a rapid and useful guide for antibiotic therapy. Such tests when applied to the two Listeria cultures indicated that these organisms were quite sensitive to penicillin, extremely sensitive to aureomycin, moderately sensitive to chloramphenicol and resistant to streptomycin

Both Listeria cultures were found to be resistant to sodium sulfadiazine in concentration ranging from 1 to 100 mg. per 100 cc. when tested by the broth dilution method. The upper limit of resistance was not determined since 100 mg. per 100 cc. is far above the practical therapeutic level.

Serology.—Serum was obtained from one of the infants (C. D.) four weeks after the beginning of the illness and a test for heterophile antibody gave negative results. The serum was also tested for the presence of agglutinins active against cultures of Listeria isolated from both infants. The bacteria were grown in both brain-heart infusion broth and in trypticase soy broth. After 15 hours incubation cultures in both media were motile and showed heavy growth. They were formalinized by the addition of an amount of 0.6% formalin in 0.85% isotonic sodium chloride solution equal to the volume of the culture itself. Serum was added to 1.0 cc. amounts of each of the two antigens grown in each of the two media to give final serum concentrations ranging from 1:10 to 1:500. The agglutination tests were incubated at 37 C. for four hours and then placed in the refrigerator overnight, after which the final readings were made. Agglutination of a granular type usually associated with the somatic antigens rather than flagellar antigens was apparent in the lower serum dilutions by the end of the primary incubation period. The results of the tests are given below:

Results of Agglutination Tests of Listeria Antigens with Serum from an Infected Infant (C.D.)

Antigen	Reciprocal of Serum Dilutions				
	10	50	100	200	500
Patient C. D.					
Trypticase Soy	++++	+++	+	+	—
Brain-Heart Infusion	+++	+	±	—	—
Patient R. E.					
Trypticase Soy	++++	+++	++	±	—
Brain-Heart Infusion	—	—	—	—	—

Control: A normal rabbit serum diluted 1:10 was used as a control and gave no agglutination. Serum obtained from the mother of C. D. also gave negative results when tested at all dilutions used above.

Pathogenicity.—Two guinea pigs were inoculated intraperitoneally with approximately 10^2 and 10^5 bacteria respectively, from an 18-hour broth culture of the C. D. isolate. These animals did not show any gross symptoms or evidences of infection.

One drop of a young broth culture of the C. D. isolate was instilled into the conjunctival sac of a rabbit. Within 24 hours severe inflammation of the conjunctivas was apparent and a purulent exudate was forming. By 48 hours the eyelids were matted together with pus and upon being softened with isotonic sodium chloride solution and opened, revealed severely inflammed and injected conjunctivas. On the third day the animal was given aureomycin subcutaneously and the eye was cleansed and soaked in aureomycin saturated gauze.

After this the animal made an uneventful recovery, and within a week the eye had cleared except for some slight injection of blood vessels. As far as could be determined from gross examination there was no damage to the cornea.

Later, this animal received an intraperitoneal injection of approximately 10^5 bacteria of the C. D. strain. On the third day following this injection smears were made of blood from the marginal ear vein. Four days after the first injection the rabbit received another injection of about 10^7 bacteria of the same strain and smears were obtained on the third and seventh day following. The animal did not appear ill at any time.

Differential counts of the white cells in smears taken from the rabbit at different times after injection of the

bacteria did not reveal any significant shift of the leucocyte picture from the normal.

The morphological, cultural, and physiological tests performed on the cultures isolated from two cases of infant meningitis indicate that these organisms may be identified as Listeria monocytogenes. Comparison of the characteristics of the two cultures which we have studied with those listed for L. monocytogenes in Bergey's "Manual of Determinative Bacteriology" (1948)[10] shows only slight differences. A survey of the literature [11] shows that Listeria are somewhat variable in their ability to attack various carbohydrate substrates. Moreover, great variations in pathogenicity for guinea pigs and rabbits have been demonstrated. Although only one of our strains (C. D.) was tested, 10^7 and 10^5 cells given intraperitoneally into a rabbit and guinea pig, respectively, failed to produce apparent infection. Even these doses are not as large as those required by Julianelle [11b] to establish infection in guinea pigs and rabbits with some of the Listeria cultures which he studied. In addition, intravenous administration of the organisms might have been much more effective in producing infection. The fact that characteristic ophthalmic reactions were produced by our cultures would seem to be the best criterion of pathogenicity and confirmation of the identification of these organisms as Listeria.

All tests carried out on the strains of Listeria isolated from the spinal fluids of the two infants indicated that the cultures were identical. Although the serological tests are incomplete, the agglutination of both strains by serum from the infant which survived indicates the close relationship of these bacteria. The influence of the composition of the medium in which the bacteria are grown upon their agglutinability is worthy of note.

COMMENT

L. monocytogenes is a gram-positive bacillus which has been isolated from patients who have infectious mononucleosis. It is still to be proved that this organism is the causative agent of infectious mononucleosis. It has been isolated from animals, but the part played by animals as a reservoir of infection for human beings is not known.

Although the epidemiology of the disease is not known, it is not without significance that these infants were born in the same delivery room within two days, that the family of the baby who died lived on a farm and was in contact with farm animals, that the mothers shared a common bath, and that the infants were in the nursery together for a period of 24 hours. Circumstances here were similar to those in the cases in two newborn infants reported by Burn.[1]

The resistance of this organism in our cases to sulfadiazine is in accordance with the experience of Berry.[9] Handelman,[3] on the other hand, found that the drug of choice in his case was sulfadiazine and that the organism was quite resistant to penicillin.

Patient C. D. was treated initially with a multiplicity of drugs, but she showed no improvement clinically or bacteriologically until after the sensitivity tests were reported and aureomycin was started. It is felt that aureomycin played the most important role in bringing about recovery.

SUMMARY

Two cases of meningitis due to Listeria monocytogenes in newborn infants are reported. The first patient died; the second patient recovered, when aureomycin and penicillin were used as the principal treatment.

ADDENDUM

Since this paper was submitted for publication, the family of the patient in Case 2 moved to another city, where an obstructive hydrocephalus developed and a Torkelston operation was performed. Postoperatively, the child developed pulmonary complications and expired at the age of nine months.

710 W. Hill (Dr. Line).

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AMEBIC GRANULOMA OF THE RECTUM

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Reports of amebic granuloma in general, and of amebic granuloma of the rectum in particular, are relatively rare. Accordingly, the following case of amebic granuloma of the rectum is reported.

REPORT OF A CASE

D. B. F., a 49-year-old man was seen Aug. 3, 1949. He had recently returned from a trip to the Orient. He stated that he had first had symptoms of diarrhea in early July, while in Bagdad. His bowel looseness lasted a short while and then improved briefly. From then on he had recurrent spells of mild diarrhea with lower abdominal cramping pain. He had first observed the passage of bloody mucus only four days before consulting me. On reaching this country he reported to the Division of Infectious Diseases of the National Institutes of Health, where his fecal material was found teeming with Endameba histolytica.

A physical examination revealed a liver palpable 7 cm. below the costal margin on deep inspiration, which was sensitive to palpation. There was some tenderness on palpation of the colon, particularly of the left colon; digital rectal examination disclosed a tumor mass, the size of an English walnut, in the right posterior part of the rectum. This tumor was located 7 cm. above the anus.

Proctoscopic examination revealed a bleeding mass of the above-mentioned size in the location as described. This mass had a broad base, was ulcerated and bleeding, and had the gross appearance of a malignant tumor. Proctoscopy beyond the mass to a level of 22 cm. revealed a few pinhead-sized areas of ecchymosis. There appeared to be no other abnormality.

Results of routine laboratory studies were negative. An ameba-complement-fixation test was reported negative by the National Institutes of Health. This test was repeated on Sept. 29, 1950, and was also negative. Biopsy of the tumor was made Aug, 8, 1949. Study revealed no evidence of cancer.

Microscopic Examination.—Sections through the larger piece of tissue revealed it to be covered by a mildly hyperplastic rectal mucosa which was polypoid in shape. The crypts of Lieberkuehn were regular and uniform. The connective tissue stalk was somewhat sclerotic and showed infiltration by chronic inflammatory cells. The smaller piece of tissue submitted was also polypoid, but associated with this piece was a mass of tissue infiltrated by a severe acute inflammatory reaction. The infil-

trate consisted of an abundance of polymorphonuclear cells, but there were also many lymphocytes, plasma cells, and eosinophils. The eosinophils were most prominent in the fixed tissue, while the polymorphonuclear cells were most abundant in the superficial ulcerating membrane. Careful inspection of the large phagocytic cells failed to reveal the presence of inclusion bodies. No specific etiology was discernible from the section seen.

Treatment and Further Observations.—The patient was then treated with five daily injections of 1 grain of emetine hydrochloride; coincidently he received carbarsone, 0.25 gm. three times daily for one week. Carbarsone was discontinued for one week and then given for another week. On the completion of this course of carbarsone, the patient was given chloroquine, 9.6 grains (0.72 gm.) three times daily for 20 days.

Proctoscopic examination on Aug. 20, 1949, revealed no tumor, but there was slight thickening at the point the tumor had been seen. A proctoscopic examination on Aug. 30, 1949, revealed slight scarring and firmness of the submucosal tissue at the site of the tumor. The mucous membrane was intact. Examination of the stool for E. histolytica at the National Institutes of Health at this time gave negative results.

The patient was seen again Sept. 25, 1950. He stated that he had been entirely well. A proctoscopic examination revealed no abnormality in the rectum or sigmoid. There was no scar at the location of the amebic granuloma. Stool examinations at the National Institutes of Health disclosed no E. histolytica.

The liver was markedly reduced in size; it could be felt just beneath the costal margin at the end of deep inspiration. It was not tender to palpation.

SUMMARY

A case of amebic granuloma of the rectum is reported. The diagnosis is regarded as having been established by (1) the character of the tumor, (2) the presence of a great number of vegetative Endameba histolytica in the feces, and (3) the prompt disappearance of the tumor on antiamebic treatment.

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JARISCH-HERXHEIMER REACTION FOLLOWING PENICILLIN THERAPY IN CASE OF SYPHILITIC AORTITIS

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Penicillin has been widely employed in the therapy of cardiovascular syphilis during the past five years, and yet the occurrence of serious Jarisch-Herxheimer reactions remains controversial. Dolkart and Schwemlein [1] report two cases in which anginal episodes occurred in the course of penicillin treatment of cardiovascular syphilis. One occurred after 20,000 units had been administered in two doses of 10,000 units each in two days, the other on the fourth day after the administration of 700,000 units. The first case was complicated by rheumatic heart disease, and the second had previous [illegible] precordial pain. Use of penicillin was discontinued in both, but the assumption that these symptoms were produced by Jarisch-Herxheimer reactions due to penicillin is a tenuous one.

Diefenbach [2] reports a case of fatal Jarisch-Herxheimer reaction with sudden aneurysmal dilatation of the arch and descending aorta and consequent complete left bronchial occlusion in a Negro man, 75, with syphilitic aortitis treated with penicillin for pneumonia. Bronchoscopic and autopsy findings are reported. Moore [3] reported one case in which the patient treated with combined penicillin and malarial parasites died of heart failure four days after the completion of therapy. Autopsy revealed plaques of aortitis with large hemorrhages in each. Callaway and co-authors [4] reported the probable rupture of an aortic cusp in one of their patients several weeks after the completion of penicillin therapy. It seems fair to assume that the cases of Diefenbach and Moore are acceptable as Jarisch-Herxheimer reactions; however, the evidence that the case cited by Callaway and others is a true instance of therapeutic shock is uncertain and probably represents an instance of so-called therapeutic paradox.

In the light of present knowledge, it appears fairly certain that, in general, reactions to penicillin are less frequent and milder than to other forms of treatment for syphilis. Various reports mention small numbers of untoward reactions to penicillin in cases of late syphilis; but most of these are not of a serious nature, and many are of doubtful relationship.[5] On the other hand, Russek and others,[6] Hill,[5b] Tucker and Farmer,[7] and Flaum and Thomas [8] reported a total of 96 patients with cardiovascular syphilis treated with penicillin in whom no adverse reactions were noticed. Flaum and Thomas believe that the danger of Herxheimer reactions has been overemphasized, although they still advise the administration of bismuth before penicillin is used in patients who have received no previous antisyphilitic therapy. Edeiken and his co-workers [9] have treated 62 patients with cardiovascular syphilis initially with penicillin without untoward effects. Twelve of these patients were in a state of congestive failure at the time of institution of therapy.[10] These authors feel that strong evidence exists that penicillin has no injurious effects as initial therapy in cases of syphilis involving the cardiovascular system.

Although it is granted that the occurrence of Jarisch-Herxheimer reactions in cases of cardiovascular syphilis after penicillin therapy is probably unusual, the following case of a fatal reaction due to use of penicillin in a patient with syphilitic aortitis and involvement of the coronary ostia with subsequent myocardial infarction is reported in order to stress that such reactions may occur.

REPORT OF A CASE

I. K. a white woman, 43, was admitted to Queens General Hospital, to the service of Dr. A. Douglas, for the first time for complaints of exertional dyspnea and "dry" cough of one-month's duration, complicated by feverishness 11 days prior to admission. Because of the cough and feverishness, a local physician administered 300,000 units of penicillin intramuscularly. Approximately six to eight hours following this, the patient complained of pain in the left scapula with radiation to the left shoulder and arm. The cough became productive, the dyspnea became progressively severer, and admission to the hospital was advised.

The past history was completely noncontributory; there had been no previous symptoms referable to the patient's cardiovascular system, and the occurrence of syphilis was denied.

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1. Dolkart, R. E., and Schwemlein, G. X.: Treatment of Cardiovascular Syphilis with Penicillin, J. A. M. A. **129**: 515 (Oct. 13) 1945.

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At admission the patient was a well-preserved 43-year-old white woman who was dyspneic, orthopneic, and cyanotic, well oriented, and cooperative. Head, eyes, ears, nose, throat, and neck were not remarkable; funduscopy findings were normal. The lungs were congested with bibasilar rales and complicated by pleural effusions, the left side of greater degree than the right. The heart beat was regular in rhythm with tachycardia at a rate of 120 per minute; the tones were good. The blood pressure was 110/80. An apical, rumbling, long, low-pitched presystolic murmur, without a thrill, and an aortic, early, high-pitched diastolic murmur were heard, as well as a diastolic gallop rhythm at the left lower sternal border. The liver was depressed 3 to 4 finger breadths below the umbilicus on inspiration. There was bilateral 2 + pretibial and pedal edema. The temperature was 100 F. The white blood count was 12,500, with 78% polymorphonuclears, and there was 13 gm. of hemoglobin. The blood urea nitrogen was 30 mg. per 100 cc. and the creatinine 2.2 mg. per 100 cc. Despite use of nasal oxygen, digitalis, and diuretic therapy, the patient became shock-like on the second day, and the blood pressure dropped to 100/60. By the third day the patient's condition had further deteriorated, and the blood pressure averaged 76/40. The aortic blowing murmur became more intense, and the apical presystolic murmur almost completely disappeared. A left thoracentesis was done, and 600 cc. of straw-colored fluid, with a specific gravity 1.008, was removed. Several electrocardiograms revealed a left strain pattern and changes suggesting posterior wall myocardial infarction. The Wassermann and Mazzini tests were positive, both 4 +. The diagnoses considered were syphilitic or rheumatic heart disease with aortic insufficiency and possible Austin Flint murmur. The possibility of a postpenicillin therapy Herxheimer reaction in a luetic heart with coronary ostial stenosis and myocardial infarction was proposed. The patient died on the third hospital day.

At autopsy the essential findings were limited to the cardiovascular system. Six hundred cubic centimeters of serous fluid was found in the left and 300 cc. in the right pleural cavities. The heart weighed 400 gm. There were scattered and confluent areas of fresh necrosis of the left ventricular myocardium, mainly in the region of the interventricular septum and posterior wall, and old fibrotic changes throughout the entire left ventricular myocardium. No localized massive infarction was noted. The left ventricle was 12 to 14 mm. thick throughout; the remaining chambers revealed no dilatation or hypertrophy. The tricuspid and pulmonary valves were natural. The mitral valve had a slight thickening of the free edge of its cusps with normal chordae tendineae. The aorta was not widened. The aortic cusps were so thickened and shortened that they were dimpled and rolled. The commissures between the cusps were widened to approximately 3 mm. and considerably thickened. Considerable thickening and narrowing around both coronary ostia was apparent, especially about the left, almost obliterating its opening. The area surrounding the coronary ostia showed considerable edema. The proximal portions of the coronary arteries showed minimal sclerosis; the distal portions were without sclerosis. No occlusion or thromboses were present. Throughout the ascending aorta there were small areas of punched-out intimal lesions of a greyish-white appearance. Considerable calcification of the ascending thoracic aortic intima was noted. The intimal changes extended down to the superior mesenteric artery ostium and stopped abruptly over an area of approximately 3 to 4 mm. The remaining part of the aorta was normal. There was a slight aneurysmal dilatation of the ascending thoracic aorta in which tree-barking was noted. Thickening of the aortic adventitia was present. The microscopic sections of the myocardium confirmed the gross findings of scattered old fibrosis and fresh areas of necrosis with polymorphonuclear infiltration. The aortic sections revealed severe fibrous adventitial thickening with round cell perivascular infiltration, extending to the medial vessels. The media showed fragmentation of its fibers and disorganization by varying-sized vessels. In areas the media was thinned to one-fourth its normal thickness by the out-pouching of the intima. Calcium deposits in the intima were also found. Microscopic sections of fixed specimens of the aorta through the coronary ostia revealed marked distortion of all the coats with diffuse focal and nodular scarring of the media. The adventitia was compact, thickened, and fibrotic. Vascularization with plasma cell infiltration and perivascular round cell accumulation was present in the adventitia and media. The endothelium in certain areas was elevated by a nonstaining space occupying material probably representing edema fluid. There were many areas of active focal necrosis in the media with round cell infiltration and some polymorphonuclear leukocytosis but no eosinophils.

The pathological findings were summarized as follows: The gross and histological findings suggest a chronic active syphilitic process with marked distortion of the aorta in the region of the coronary ostia and marked narrowing of the coronary ostia. Active inflammatory lesions of indolent nature are evident with focal degeneration and devitalization in atheroma and collagen. It cannot be stated definitely whether the fresh changes noted represent an active syphilitic process or changes due to the edema of a local Herxheimer reaction. The latter, however, is certainly a possibility. The necrotic areas in the left ventricle and interventricular septum represented focal areas of myocardial degeneration as seen in myocardial infarction and were definitely fresh, probably 8 to 10 days old. These are changes commonly seen after acute prolonged myocardial ischemia.

COMMENT

The Jarisch-Herxheimer reaction consists mainly of two reactions: (1) the general response of fever and malaise, and (2) the focal response of the site involved by the syphilitic process. It is the focal exacerbation which is of concern in the use of penicillin or any antisyphilitic drug in cases of cardiovascular syphilis. In cases of early syphilis and in cases of neurosyphilis the Herxheimer reaction is frequently encountered, as many as 75% of the cases of early syphilis showing some evidence of such therapeutic shock.[5b] The response is an immediate effect of penicillin therapy and occurs after the first or second injection, or four to six hours following the advent of treatment. The occurrence of this phenomenon in cases of early syphilis or even in cases of neurosyphilis is of little consequence; fatalities do not occur, and therapy need not be discontinued. In cases of cardiovascular syphilis, however, the Herxheimer reaction assumes great importance because of the theoretic possibility of the occurrence of occlusion of coronary ostia or rupture of an aneurysm.

The question has arisen whether such fatal reactions do occur, and to the best of our knowledge no case has been reported of such an event. Although it is impossible

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8. Flaum, G., and Thomas, E. W.: Penicillin Therapy of Cardiovascular Syphilis, Am. Heart J. **38**: 361, 1949.

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10. Edeiken, J.; Ford, W. T.; Falk, M. S., and Stokes, J. H.: Penicillin Treatment of Patients with Cardiovascular Syphilis in Congestive Failure, Circulation **1**: 1355, 1950.

to prove definitely that our case represents a true instance of therapeutic shock, the sequence of clinical events and the eventual postmortem findings lead to the inevitable conclusion that such was the case.

The patient, a relatively young woman, had had no previous symptoms of coronary insufficiency or cardiac failure. Several hours following the first injection of penicillin, and at about the time a Herxheimer reaction would be expected, she experienced symptoms suggestive of coronary occlusion with subsequent congestive failure. Electrocardiograms substantiated the clinical impression of myocardial infarction, and finally autopsy showed syphilitic aortitis with involvement of the coronary ostia, myocardial infarction, and the absence of coronary artery sclerosis. In the gross, the areas surrounding the coronary ostia were edematous suggesting recent exacerbation. The case for a Jarisch-Herxheimer reaction seemed so clear-cut that the diagnosis was suggested antemortem, and it was felt that the postmortem findings confirmed this impression.

In view of the fact that many patients with cardiovascular syphilis are to receive penicillin in the future—either as a specific therapy, coincidentally, or accidentally, as in our case—it seems important to report instances in which probable fatal reactions are encountered. Although the bulk of evidence indicates that fatal therapeutic shock is distinctly unusual with the use of penicillin in cases of cardiovascular syphilis,[11] the discriminate use of penicillin is certainly in order in treating the disease and in the treatment of any patient about whom little is known.

SUMMARY

A case is reported in which a fatal Jarisch-Herxheimer reaction occurred in a patient with syphilitic aortitis involving the coronary ostia. This patient received penicillin, presumably for an upper respiratory tract infection. It is believed that this produced a focal exacerbation around the coronary ostia resulting in a myocardial infarction. The discriminate use of penicillin is urged both in the syphilitic patient and in the patient about whom little is known.

564 S. Main St. (Dr. Fishman).

11. Russek, Cutler, Fromer, and Zohman.[8] Tucker and Farmer.[7] Flaum and Thomas.[8] Edeiken, Falk, and Steiger.[9] Edeiken, Ford, Falk, and Stokes.[10]

Prognosis of Eclampsia.—With regard to remote prognosis, my experience does not agree with the statement that "once an eclamptic, always a toxaemic," unless there was preexisting hypertensive disease at the commencement of the pregnancy. In the great majority of cases those who survive recover completely and pass through succeeding pregnancies without any trouble. If the patient is left with severe hypertensive disease, little or no renal damage and no living children, there may be a place for the Smithwick type of operation. . . .

A woman who has had eclampsia should not become pregnant for at least two years, and then only if kidney function tests give results within normal limits. No definite prognosis is given for at least six months, as renal function tests performed soon after eclampsia may be misleading and at this stage suggest permanent renal damage. Further examination in from three to six months may reveal perfectly normal renal function.—W. F. Joynt, Pregnancy Toxaemia, *The Medical Journal of Australia*, Sept. 29, 1951.

ESOPHAGEAL OBSTRUCTION DUE TO METHYLCELLULOSE

REPORT OF AN UNUSUAL CASE

Morrison H. Belmont, M.D., San Francisco

In recent years the advocation of the use of methylcellulose tablets for the relief of constipation has been brought to the attention of almost every physician practicing medicine. The widespread use of methylcellulose tablets, and the relative ease with which these tablets are obtained without first consulting a physician, prompt me to report an unusual and interesting case in which the self-administration of these pills, which acted as a foreign body, produced complete obstruction of the esophagus.

REPORT OF A CASE

A. L., a 67-year-old white man, was admitted to the Mount Zion Hospital complaining of a choking sensation and inability to swallow comfortably after the ingestion of methylcellulose pills.

About noon on the day of admission to the hospital, the patient took three coated methylcellulose tablets that he purchased an hour earlier at his neighborhood drug store. He complained that the pills lodged in his throat. His wife gave him some hot water to drink and the tablets still did not "go down." A distressing choking sensation followed, and the patient went to one of our emergency hospitals to seek relief. Attempts to pass a Levin tube past the obstructing pills were unsuccessful. He was sent to another hospital, where further repeated attempts to bypass the obstruction were unsuccessful. By this time the patient was able to contact his personal physician, and he was referred for further evaluation and treatment.

A long-standing history of constipation was elicited, for which many types of medication were used for relief. In 1947 a suprapubic prostatectomy was done with no complications. An incisional hernia was repaired in 1950 with no apparent untoward effects. In 1949 the patient was struck by an automobile, and he suffered a severe concussion. Since that time he has been quite weak and dyspneic on exertion. He states it best by saying that he has generally "slowed down."

Physical examination revealed an elderly, overweight, white man, continually coughing and expectorating mouthfuls of clear saliva. There was considerable apprehension with respiratory distress. There was no cyanosis. His temperature was 36.2 C (97.1 F), his respiration 30 per minute, his pulse 68, with a blood pressure of 120/90. There was marked watering and congestion of the conjunctiva. The lungs were clear to auscultation and percussion. The heart sounds were of good quality with normal sinus rhythm. The area of cardiac dulness was indistinct. There was a Grade 2 systolic murmur over the precordium, loudest at the second left interspace on the right and the left of the sternum. A pitting edema (2+) of the pretibial region and the ankles was noticed. Good pulsations of the radial and dorsalis pedis arteries were present. The patient was taken to the x-ray department, where a barium-filled capsule was swallowed, and the roentgenograms showed the pellet of barium to be held in the esophagus at a level corresponding to the fourth thoracic vertebra. He was taken to the operating room for esophagoscopy.

With the patient under intravenous thiopental (pentothal®) sodium and curare anesthesia, a 10 by 45 cm. Jackson esophagoscope was introduced into the esophagus. The hypopharynx and the opening of the esophagus were reddened and edematous. The esophagoscope was advanced down to a level of 24 cm. from the upper midgingival margin, and the barium previously given was visualized. This was aspirated, and a pearly gray, firm, gelatinous mass was readily seen completely obstructing the esophagus. With gentle but firm pressure the instrument could not be advanced beyond this area. An attempt to aspirate or flush out this material was unsuccessful. The gelatinous material was removed in small fragments with a long grasping forceps until a free lumen was established. A Levin tube was passed into the

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stomach and brought out through the nostril after the withdrawal of the esophagoscope. The patient left the operating room in good condition.

Following endoscopic removal of this foreign body, the patient was relieved of all his symptoms. The Levin tube was removed on the second postoperative day, and a soft diet was well tolerated by the patient. He was discharged from the hospital the following day. There was no dysphagia or respiratory distress. An esophagram was taken a week later, and no obstruction or delay of the passage of the barium was noted.

SUMMARY

An unusual foreign body that caused a complete obstruction of the esophagus in its upper third is reported in an elderly patient. This consisted of a gelatinous mass formed from three coated methylcellulose tablets that became hydrated in the esophagus. The distressing symptoms of choking and smothering were completely alleviated following endoscopic removal of the resultant gelatinous mass eight hours after the pills were swallowed.

909 Hyde St.

COUNCIL ON FOODS AND NUTRITION

The following products have been accepted as conforming to the rules of the Council on Foods and Nutrition.

JAMES R. WILSON, M.D., *Secretary.*

The Borden Company, New York.

KLIM POWDERED WHOLE MILK WITH VITAMIN D ADDED, a powdered whole milk fortified with vitamin D, irradiated 7-dehydrocholesterol, in amounts sufficient to produce a minimum of 400 U. S. P. units of vitamin D per reliquefied quart (32 fluid ounces) of whole milk powder.

Analysis (submitted by manufacturer).—Butterfat 28.00%, protein 26.5%, lactose 37.7%, minerals 5.8%, moisture 2%.

Calories.—5.1 per gram; 145 per ounce.

Clapp's Baby Food Division, American Home Foods, Inc., Rochester, New York.

CLAPP'S JUNIOR SQUASH.—Ingredients: squash, salt, and water sufficient for preparation.

Analysis (submitted by manufacturer).—Total solids 8.73%, moisture 91.27%, ash 0.79%, fat 0.13%, protein (N × 6.25) 0.55%, crude fiber 0.85%, carbohydrate (by difference) 6.41%.

Vitamins and Minerals	Mg. Per 100 Gm.
Carotene	1.45
Thiamine	0.010
Riboflavin	0.078
Ascorbic acid	3.68
Nicotinic acid	0.450
Calcium	12.39
Phosphorus	30.28
Iron	0.64
Copper	0.59

Calories.—0.29 per gram; 8.3 per ounce.

Use.—For use in the feeding of older infants and young children.

Reid Murdoch & Company, Division of Consolidated Grocers Corporation, Chicago.

MONARCH BRAND DIETETIC PACK STRAINED GREEN BEANS consists of the vegetable itself, packed in water without any added salt.

Analysis (submitted by manufacturer).—Available carbohydrates (total carbohydrate minus crude fiber) 4.88%, crude fiber 0.78%, fat (ether extract) 0.04%, protein (N × 6.25) 1.39%, ash (minerals) 0.49%, sodium 1.6 mg./100 gm.

Calories.—0.25 per gram; 7.9 per ounce.

Use.—For use in low sodium and other therapeutic diets.

Smith-Dorsey, Lincoln, Nebraska, Division of The Wander Company, Chicago.

H.P.S. SIXTY. Ingredients: milk protein concentrate, sodium proteinate from soybean meal, whole egg powder, powdered sugar, ethyl vanillin.

Analysis (submitted by manufacturer).—Total solids 95%, moisture 5%, ash 6.3%, fat 1.5%, protein (N × 6.25) 60%, carbohydrate 27%.

Calories.—3.6 per gram; 102.1 per ounce.

Use.—A whole protein supplement for oral use when extra protein or a concentrated source of protein is required in the diet.

COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

The following additional article has been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

R. T. STORMONT, M.D., *Secretary.*

NPH Insulin.—NPH Iletin (Lilly).—"NPH insulin is a preparation of crystals containing insulin, protamine, and zinc, suspended in a buffered medium. Zinc-insulin crystals are used in such quantity that each cubic centimeter of the preparation, when the precipitate therein is brought into uniform suspension, contains either 40 or 80 U.S.P. Units of insulin. Protamine is used in such quantity that the preparation contains not less than 0.3 milligram nor more than 0.6 milligram for each 100 U.S.P. Units of insulin; but the quantity is not less than that of the isophane ratio . . . and does not exceed that of the isophane ratio by more than 10%. The preparation contains, for each 100 U.S.P. Units of insulin, not less than 0.016 milligram and not more than 0.04 milligram zinc and not more than 0.85 milligram nitrogen. Disodium phosphate (calculated as Na_2HPO_4) is used in a quantity not less than 0.15% and not more than 0.25% (w/v). The pH of the finished preparation is not less than 7.1 and not more than 7.4. The preparation also contains either (a) not less than 1.4 and not more than 1.8% (w/v) glycerin and not less than 0.15 and not more than 0.17% (w/v) metacresol and not less than 0.06 and not more than 0.07% (w/v) phenol, or (b) not less than 0.42 and not more than 0.45% (w/v) sodium chloride and not less than 0.7 and not more than 0.9% (w/v) glycerin and not less than 0.18 and not more than 0.22% (w/v) meta-cresol. The protamine used is prepared from the sperm of mature testes of fish belonging to the genera *Oncorhynchus* Suckley, *Salmo* Linne, or *Trutta* Jordan and Evermann (Fam. *Salmonidae*)." Regulations promulgated Sept. 28, 1950 by the Administrator, Federal Security Agency: Certification of Batches of Drugs Composed Wholly or Partly of Insulin [15 Fed. Reg. 7363 (Nov. 2, 1950)].

NPH Insulin conforms to the regulations of the Food and Drug Administration concerning insulin-containing drugs.

NPH insulin injection has about one-half to one-fifth the protamine and about one-sixth to one-twelfth the zinc content of protamine zinc insulin injection.

Actions and Uses.—Essentially, NPH Insulin is a modification of protamine zinc insulin, but it differs in that it contains less protamine, less zinc, and is crystalline rather than amorphous in character. The pharmacologic action of NPH Insulin is similar to that of the other insulins. Its blood sugar lowering action is in an intermediate position between globin insulin and protamine zinc insulin. The onset of action for NPH Insulin usually begins within 2 hours after subcutaneous injection, whereas 4 to 6 hours are required for protamine zinc insulin. Its peak effect occurs 10 to 20 hours after administration, and its duration of action is 28 to 30 hours.

NPH Insulin may be mixed with regular insulin. Loss of quick action of regular insulin is less with NPH Insulin than with similar mixtures with protamine zinc insulin, because NPH Insulin contains less available protamine. Used in conjunction with regulation of diet and exercise, this form of insulin is of value in control of severe and labile diabetes. It is not recommended for use alone in patients who require quick acting insulin.

Dosage.—See Protamine Zinc Insulin.

Warning.—If administered after breakfast, danger of nocturnal hypoglycemia exists.

NPH Iletin: 10 cc. vials. 40 units or 80 units in each cubic centimeter. Preserved with 0.15% *m*-cresol and 0.06% phenol. Eli Lilly & Company, Indianapolis, Ind.

NPH Insulin: 10 cc. vials. 40 units or 80 units in each cubic centimeter. Preserved with 0.15% *m*-cresol and 0.06% phenol. E. R. Squibb & Sons, New York.

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ESSENTIALS OF AN ACCEPTABLE MEDICAL SCHOOL REVISED

The first standards officially established by the American Medical Association for an approved medical school were prepared more than 40 years ago by the Council on Medical Education and Hospitals with the approval of the House of Delegates. Periodically, these standards, known as the "Essentials of an Acceptable Medical School," have been revised by the Council to meet changing ideals, concepts, and methods in medical education.

In December, 1951, the Council completed work initiated a year earlier on the eighth major revision of these essentials. The revision was approved by the House of Delegates at the Clinical Session in Los Angeles. Copies of the revised essentials are at present being distributed to the medical schools and others interested in medical education. In the course of preparing this revision, the Council received valuable suggestions from the Association of American Medical Colleges.

The revised essentials do not depart from fundamental principles that have been long accepted as the basis for successful undergraduate medical education. The changes that have been made, however, should be valuable in clarifying current concepts of medical education and in stimulating further advances. An important example of such a change is to be found in the following restatement of the section dealing with the design of the medical curriculum: "The entire course should be designed as an integrated program of instruction with the objective of the education of the student in the science, art and practice of medicine, including the understanding of health and its cultivation and the understanding of disease and its prevention and treatment. The students should also be made fully aware of the social aspects of medicine and of the role of medicine in the community."

The essentials then state: "No rigid curriculum for accomplishing these objectives can be prescribed. On the contrary, continuous study by the faculty with the introduction of modifications and new methods and materials that take proper cognizance of advances in medical science and changing conditions of medical practice is essential in the conduct of an acceptable medical school."

This statement reflects no basic change in the attitude of the Council but rather makes explicit a philosophy that has been held for many years. The medical curriculum cannot become fixed or static. The above statement makes it clear that a school that does not subject its curriculum to continuous study and that does not continually seek to improve its curriculum must be regarded as deficient.

A major change in the essentials is found in the requirements for admission to an approved medical school. Since 1918, the minimum requirement for admission to approved medical schools has been two years of college training. Since 1938 the Council has recommended three or more years. This recommendation has now been made a requirement. The new essentials states that, beginning Jan. 1, 1953, "The minimum requirement for admission to approved medical schools is three years of college training for the average student. For most students four years is recommended in order to provide an opportunity to gain a broad educational experience. Rarely a school will be justified in admitting a superior student under exceptional conditions after two years of college work." The latest available statistics indicate that, of the students who entered medical school in 1949 and 1950, 99 per cent had had three or more years of college training.

The section of the essentials dealing with the faculty, which previously discussed principally the faculty of the preclinical departments, has been expanded and clarified by the addition of the following paragraph: "In the major clinical areas of medicine, surgery, pediatrics, obstetrics and psychiatry, there should be a nucleus of full time instructors who have as their major responsibility the planning and supervision of the department's educational program and the conduct of research." This paragraph gives further emphasis to an important trend that the Council has encouraged for many years.

Many other changes have been made throughout the essentials to clarify meaning, to introduce desired flexibility, or to recognize modern techniques and methods of teaching and administration. Some may be critical that the essentials are neither sufficiently detailed nor sufficiently revolutionary. When the Council prepared its first essentials, medical education in the United States taken as a whole was in a state approaching chaos owing to the lack of recognized standards as to what constituted a satisfactory medical school. After studying the patterns of education set by leading medical schools abroad and by the few outstanding pioneer medical schools in this country, the Council set forth in its first essentials relatively specific requirements for schools seeking its approval. As the medical schools became stable institutions under university or other responsible sponsorship, the Council progressively modified its essentials in the direction of stating fundamental principles and objectives, leaving to the individual institutions the choice of methods each should follow to implement these principles and achieve these objectives. Much specific detail has been eliminated therefore from the essentials as they have been revised over the years. This same development of the medical schools as mature, stable institutions has made unnecessary and undesirable any attempt to intro-

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duce requirements that would be revolutionary in medical education. Medical education has long since achieved a level of stability from which more progress can be expected by evolution than by revolution. The function of the Council, as is well reflected in the present essentials, is not to force innovations in medical education on the medical schools as requirements but to foster and encourage experimentation and to weigh experiments and innovations carefully, including them in the essentials only when their merit has been proved. In this manner the Council gives recognition to important advances in medical education and encourages their acceptance by all schools. The Council is to be congratulated on the skill with which it has succinctly stated the fundamentals of a modern acceptable medical school in this latest revision of its essentials.

MEDICAL EDUCATION FOUNDATION ENTERS SECOND YEAR

The American Medical Education Foundation ended its first year Dec. 31. During this initial period, more than 1,800 individual physicians contributed to the total of $745,917.84 received by the Foundation. In addition, 33 organizations and 33 lay persons made contributions. Although short of the anticipated goal, these results may be considered reasonably satisfactory for a new undertaking of the magnitude of the Foundation.

A source of real encouragement is the steadily increasing interest shown in the Foundation during the last two months of 1951, as reflected by the number of individual contributions. The number of contributions received so far in 1952 indicates that this interest, which has been largely stimulated by the increasingly active efforts of state and county societies, will continue to grow.

The Foundation is now perfecting plans for its 1952 program. As it did in 1951, the Board of Trustees of the American Medical Association has made a gift of one half million dollars to serve as a nucleus for the year's fund. This gift brings to a total of one million dollars the American Medical Association's contributions to the Foundation since its inception a year ago. The Association will also continue to underwrite all the expenses of the Foundation, so that every dollar of every contribution received can be passed on to the medical schools.

A new feature of this year's campaign will be a meeting later this month in Chicago of representatives of all state societies. This conference is designed to facilitate a greatly increased participation by state and county societies in the 1952 campaign. The experience of the first year makes it clear that the success of the Foundation, as with all important efforts of the medical profession, will be measured in terms of action at the state and county level.

At the suggestion of many leaders in the profession and in the medical schools, the Directors of the Foundation at their December meeting voted an important change in policy. Beginning with gifts received after Jan. 1, 1952, all contributions designated by individual physicians for a specific medical school will be added to the school's grants from the unearmarked funds raised by the Foundation and the National Fund for Medical Education. Last year each school was provided with the names and amount contributed by donors designating a school, but such contributions were included with unearmarked funds in calculating the grants according to the formulas mutually agreed upon by the Foundation and the National Fund.

This new policy means that alumni or friends of a medical school can make a contribution to a medical school through the Foundation and the school will receive the full amount of the contribution plus its full share of unearmarked funds. The advantage of making gifts in this manner is that, by increasing the total raised by the Foundation and the National Fund, gifts from other sources will be stimulated, and certain contributions that are contingent on specific totals being achieved can be collected.

To eliminate possible competition with the fund raising campaigns of the individual schools, the Directors also voted that, effective Jan. 1, 1952, the Foundation each year will give appropriate recognition in its annual report to those physicians whom the medical schools report to the Foundation as having supported medical education by making a gift directly to a medical school.

There is much evidence that the activities of the Foundation are developing a greater awareness and interest in the needs of the medical schools on the part of physicians generally. Many physicians are indicating by contribution their recognition of the debt they owe their medical schools, while many others see in the Foundation an opportunity for the medical profession to again demonstrate its willingness to aid in the advancement of high standards of medical education.

At its recent annual meeting the Association of American Medical Colleges passed the following resolution:

"RESOLVED, That the deans of the medical schools in assembly for their sixty-second annual meeting unanimously expressed their sincere appreciation and their enthusiastic thanks to the Directors and officers of the American Medical Education Foundation for their substantial support of medical education and for helping to focus national attention on the serious financial predicament of the medical schools."

The Student American Medical Association at its annual meeting in December, 1951, passed the following resolution:

"We extend our sincere appreciation to the American Medical Education Foundation for the most beneficial program they are undertaking."

Official commendation has also been received from the American Veterinary Association.

The first distribution of funds to the medical schools was made in July, 1951. The balance of the funds raised during 1951 is now being sent to the medical schools

through the National Fund for Medical Education. Although the campaign for contributions to the 1952 fund will not be formally initiated until the spring, a number of physicians who contributed in 1951 have already sent in their 1952 contributions. The Foundation is thus off to a good start in its second year. All signs point to a successful effort, which will constitute a real challenge to industry, business, agriculture, and other important groups concerned with medical education to contribute generously to the solution of this important problem.

LIVER AND PLASMA PROTEIN SYNTHESIS

Over a period of years evidence that the liver is the site of formation of plasma albumin, fibrinogen, and, possibly, globulin fractions has accumulated from both experimental procedures and observations in pathological states. Recently, Miller and associates [1] reinvestigated this question using newly developed techniques. They perfused isolated, intact rat livers with rat blood containing isotopically labelled lysine together with the amino acids essential for optimum growth in the rat and subsequently determined the rate of incorporation of radioactive amino acid in the liver and in plasma proteins. In contrast to experimental devices employing tissue slices or homogenates, the isolated liver still remains active metabolically as long as four hours after the initiation of the perfusion, and studies could be continued for about six hours. The perfused liver was able to differentiate between the L- or natural isomer and the D- or unnatural isomer of C^{14}-labelled lysine, the natural form being used for the formation of protein. Also, it was noted that the lag period, which occurred after the labelled amino acid was added to the perfusion medium and before it was incorporated into the plasma proteins, could be shortened by adding to the perfusate nonessential as well as essential amino acids. This would indicate that for the fabrication of plasma protein at rapid rates, nonessential as well as essential amino acids are required. This confirms postulates of previous workers based on data obtained in work with intact animals.

The information obtained by Miller and his associates indicates that the liver plays a dominant role in the synthesis of plasma proteins, including practically all of the albumin and fibrinogen and probably more than 80 per cent of the globulin fractions. The question of the synthesis of the individual globulins could not be answered by these investigators, inasmuch as precise fractionation of the globulins was not attempted. Their studies on isolated, nonhepatic tissues confirmed earlier reports that such tissues can remove amino acids from the perfusion fluid and convert them into tissue proteins and into plasma globulin. These studies offer an explanation for the hypoalbuminemia and inverted albumin-globulin ratio in various liver diseases. Thus the amino acids that are absorbed into the portal system may escape utilization by the damaged liver cells and are thus presented *de novo* to the extrahepatic tissues. Albumin cannot be synthesized by these tissues, but they are capable of forming some of the serum globulin. Hence it is conceivable that a large portion of the ingested amino acids may be metabolized by the extrahepatic tissues.

One of the important contributions of the Rochester group is a method of studying the metabolism of isolated organs under conditions that more closely resemble the physiological state, and by which it is possible to have better control of the various factors that influence the activity of the organ than is possible in the intact animal. These techniques should be a valuable addition to the methods of study of disease processes.

HAZARDS OF ANTIBIOTIC FEED SUPPLEMENTS

The markedly increased rates of growth that follow the addition of small amounts of the broad spectrum antibiotics to animal rations has led to widespread use of antibiotic supplements by livestock feeders. A report by Starr and Reynolds [1] draws attention to potential health hazards that may eventually offset the immediate economic gains afforded by this practice. These investigators found that the addition of small amounts of streptomycin to the rations of turkey poults caused the rapid appearance of highly streptomycin resistant coliform bacteria in feces cultures. The presence of resistant pathogens in fowls is of no great consequence in the poultry industry, since the use of antibiotics in diseases of birds is generally uneconomical. However, the spread of drug-fast strains of Salmonella to larger farm animals could, in the authors' opinion, be serious, as the value of meat animals justifies the use of chemotherapeutic agents in livestock diseases. Of greater significance is the fact that Salmonella originating from poultry have been shown unequivocally to be virulent to man. Thus the risks of incurring a large reservoir of drug-fast enteric pathogens in the poultry population cannot be dismissed lightly. Yet another possible danger of prolonged antibiotic feeding lies in the relative increase of yeast or yeast-like organisms in the birds' intestinal flora. As Starr and Reynolds point out, some of these organisms may be pathogenic to man and may prove troublesome owing to the inefficiency of known chemotherapeutic agents in fungus infections.

An earlier report [2] stressed that much remained to be determined in regard to the long-continued use of antibiotic supplements, such as the effect on metabolic processes other than growth and the possibility of residual toxicity in the meat produced. In concluding their report, Starr and Reynolds express the hope that further research will elucidate the fundamental mechanism underlying the growth-promoting effect of antibiotics and permit agriculturists to secure more rapid animal growth without inflicting potential hazards on the public health.

1. Miller, L. L.; Bly, C. G.; Watson, M. L., and Bale, W. F.: The Dominant Role of the Liver Plasma Protein Synthesis: A Direct Study of the Isolated Perfused Rat Liver with the Aid of Lysine-ε-C^{14}, J. Exper. Med. **94**: 431-453 (Nov.) 1951.

1. Starr, M. P., and Reynolds, D. M.: Streptomycin Resistance of Coliform Bacteria from Turkeys Fed Streptomycin, Am. J. Pub. Health **41**: 1375 (Nov.) 1951.

2. Growth-Promoting Effects of Antibiotics in Animals, Nutrition Rev. **8**: 298, 1950.

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THE PRESIDENT'S PAGE

A MONTHLY MESSAGE

A little more than seven years ago a motherly, gray-haired woman named Mrs. Charles W. Sewell called at the Lafayette, Ind., home of Dr. F. S. Crockett. Mrs. Sewell was then the Administrative Director of the Associated Women of the American Farm Bureau Federation. She was concerned about a postwar shortage of doctors in certain rural areas in this country. She therefore called upon her long-time friend Dr. "Davy" Crockett to see if he could suggest a solution. I believe it is safe to say that the American Medical Association's rural health program was born in that Indiana home that afternoon. Dr. Crockett was convinced of the need to "do something" to improve rural medicine. He presented his ideas to the next meeting of the Board of Trustees of the A. M. A. and became chairman of the new committee the Board established to work on the problem.

A few months ago the seven years of increasingly effective work done by the Committee on Rural Health was recognized by the elevation of the Committee to the status of a Council of the American Medical Association. This reflects the continuing interest of American medicine in the good health of the people of our rural areas.

The philosophy of the members of the Council on Rural Health is refreshing in this age of "planners." From the first, their goal has been to encourage farm persons to help themselves. They always have envisioned the role of their Council as that of a coordinator, who interests communities in their own health problems, encourages the persons in the community to work together to solve these problems, and then passes along the experience and the good ideas thus gained to others in need of help.

The primary tool used in this process is the annual national Conference on Rural Health, sponsored by the American Medical Association in cooperation with farm groups. This year's Conference—the seventh—will be held in Denver on Feb. 28 and 29 and March 1. The development of these conferences over the years reflects the progress that has been made in rural health. Early meetings, held in Chicago, were devoted chiefly to getting acquainted, to defining the health and medical problems of rural persons, and to discussing what could be done about them. Then, as each succeeding year passed, the programs became more and more filled with case history reports from communities that had successfully met their health needs. This year's program, built about the theme "Help Yourself to Health," will devote an entire afternoon to a panel called "We Have Helped Ourselves to Health—and How."

Topics that have made regular appearances on most of the Conference programs include: how a rural community can attract and hold a physician, how a community can build medical facilities or a hospital, how it can acquire modern diagnostic and therapeutic equipment, and how a community can educate its residents to use properly the physician and medical facilities that it acquires.

The A. M. A.'s Council on Rural Health has no set answers to these problems, because solutions vary with local situations. One idea, however, has been pushed strongly by the Council. That is the establishment of community health councils, through which all segments of a community can work together to improve health conditions. Through this medium, too, community leaders come to realize that the responsibility for good health rests, not on the physicians alone but also on the individual and the community. The Council stresses that physicians must take the lead in health planning but is convinced that programs will be more successful if they have community-wide understanding and support.

The Council has followed this same philosophy on the national level. When it was first decided to sponsor a national Conference on Rural Health, the Council members felt that they should contact leaders of farm organizations to determine what kind of program they wanted. Accordingly, an advisory committee was set up. On it were representatives of the Grange, the American Farm Bureau Federation, the Milk Producers Federation, and the Extension Services of the Land Grant Colleges. Its recommendations proved so valuable that the advisory committee became a permanent institution. It has continued to assist the A. M. A., not only with its succeeding conferences but with all aspects of its rural health program. Today the Committee is composed of 11 representatives from farm groups and the rural press.

Last year the Council on Rural Health took another step forward when it hired Mr. Aubrey D. Gates, associate director of cooperative extension work for the University of Arkansas, to make a nine month trip around the United States for the purpose of studying community health programs and advising medical societies and other interested groups concerning ways and means of improving local health. The only difficulty that soon became apparent in Mr. Gates' work was that nine months was totally insufficient for accomplishment of the job he had been asked to do. I am gratified to report, therefore, that, after returning to the University of Arkansas to complete previous commitments, Mr. Gates is joining the A. M. A. on a full-time basis this month. He will be available to rural communities anywhere in the nation that are in need of skilled and friendly counseling on how to solve their own health problems.

Those of you who practice in rural areas will also find the published proceedings of the various rural health conferences and the magazine reprints dealing with rural health subjects, which the Council has available, of great interest and assistance. As I have said before, the American Medical Association is your A. M. A. I encourage you to take advantage of the many facilities it has for serving you.

In closing I wish again to salute the work of the Council on Rural Health and its counterpart rural health committees in the state medical associations. These groups, together with the major farm organizations, have made significant progress in improving the rural medical picture during the past seven years. With their philosophy of self-help and joint effort, I foresee a steadily brightening health outlook for rural Americans in the future.

JOHN W. CLINE, M.D., San Francisco.

ORGANIZATION SECTION

The following six papers were among those presented at the Fourth Annual Public Relations Conference, held at Los Angeles, Calif., Dec. 2-3, 1951.

TIME IS MONEY FOR YOUR PATIENTS, TOO

Stanley R. Truman, M.D., Oakland, Calif.

Good public relations must be put into the reception room. This is an area where something can be done, and, with a little effort, a great deal can be done. Doctors make patients wait and patients resent being made to wait. Smart doctors will find means of reducing the waiting to a minimum and of relieving the resentment of patients for unavoidable delays.

Numerous public relations surveys made throughout the country show the same feeling by patients about doctors making them wait. Let's see what they say. "I spend half my time waiting to see the doctor." "I keep my appointments with the doctor, but he doesn't seem to have any with me." "It is easier to see the president of any bank and with less waiting than it is to see a doctor." "When I arrive for my appointment I find half a dozen others there at the same time." "My time is just as important as the doctor's." "I wait for hours, even though a definite appointment has been made and kept by me." In Maine, California, Texas, Virginia, Ohio, wherever you go, the story is the same, "My doctor makes me wait, my doctor makes me wait, my doctor makes me wait." From the universality of the complaint it is apparent that patients are disturbed, annoyed, and resentful.

Let's look in on a doctor's office. Some months ago I sent a patient for consultation. Let me tell you the story as the patient told it to me. "I took the morning off and had an appointment with the doctor at 10:30. I will admit I arrived early, about 10 minutes. The reception room was open, the lights were on, there was nobody there. There were some comfortable chairs. There was some reading matter of not too ancient vintage on the table; however, I had brought my own pocket magazine to read. There was no gong or sound indicating my arrival when I opened the reception room door. I looked at the inner door to see if there was a buzzer that I might press, or some other means of indicating my presence. There was none. I sat down and read for 15 minutes, keeping one ear constantly alerted for any sounds in the doctor's sanctum sanctorum. All was quiet and peaceful. I got up and inspected the outside door to see if there was some contraption to give a signal when the door was opened and shut. No mechanical device. I closed the door and went over and gently knocked on the inner door. I sat for 10 minutes more. Still there was no indication of anyone's awareness of my presence. I put down my magazine and then approached the inner door, and, with some vigorous and solid knocking, I announced my presence. Still nothing but peace and quiet. I went back to my reading. After a while one of the sweetest young things you ever saw opened the door with book in hand and nodded saying, "Mr. J. D.?" I said, "Yes." She said, "The doctor hasn't come in yet. Just make yourself comfortable." I went back to my reading. Fifteen or 20 minutes later the sweet young thing came back and said, "You can come in now." And I did.

What were the reactions to that doctor? A good old American expression summed it up very fluently, "Who does that guy think he is anyway?" Now notice that it was not the factor of the waiting, because he had taken the morning off anyway, but it was the attitude of the nurse and doctor that made the patient gradually build up resentment into actual hostility.

When a patient has made the decision to go to the doctor he has made a decision of great importance to him. He has decided to spend time, which may lose him wages or earnings, he has decided to spend money, which to the average worker often amounts to the pay earned in a half or even a full day, and, finally, he has made the decision that he may have something serious enough to need the attention of a doctor. So, he is in a state of anixety. When the secretary or the doctor by their behavior or attitude, by their lack of attention to the patient's time, comfort, or feelings make the patient feel that his call is of little importance to them, that he and his troubles are insignificant and unimportant, they arouse in the patient feelings of resentment and hostility toward the doctor and toward the medical profession.

Unfortunately, unlimited examples from the experiences of patients in doctors' offices and of the attitude of physicians toward patients could be given; however, the illustration is sufficient to make the following points: 1. Patients wait. 2. Patients wait more than is necessary. 3. Patients resent waiting. 4. The resentment aroused is created less by the act of waiting than by the attitude and behavior of the doctor and his secretary toward the patient. 5. Finally, it is rarely the doctor himself who comes in contact with the patient during this waiting period, therefore, any major improvement in this area of the patient-doctor relationship must take into consideration the function and behavior of the office personnel.

Doctors and their secretaries must be made to realize that the secretary is the ambassador of the doctor, or even more than that. In the mind of the patient the words, attitudes, actions, and personality of the secretary are interpreted as the direct projection of the words, attitudes, action, and personality of the doctor. Don't ever get the idea that the patient is going to excuse you for having an "old goat" or a "sour puss" as an assistant. No sir. It's a total feeling that the patient takes away from your office. The amount of tact, charm, and goodwill that you will have to generate in order to overcome the resentment built up by a poor secretary-patient contact will be enormous. It is not worth it. Start out with good secretary-patient relationships when the patient first contacts your office. Some doctors and some secretaries have an intuitive ability to react sympathetically to the problems and feelings of patients. They automatically know how to handle patients with tact and skill. These doctors invariably are successful in the practice of medicine. Many doctors have this gift, but how about those who do not? Fortunately for the patient, fortunately for the doctor, and fortunately for the public relations of our profession, it has been demonstrated that the techniques of understanding the patient's feelings and needs, and of assuming the proper attitude can be taught both to the doctor and to the doctor's secretary.

It would be very profitable if we could delve more deeply into the feelings, emotions, and subconscious attitudes of resentment and hostility developed in patients as a result of poor waiting room and reception techniques. Studies on the subject have been started in this area, and we shall follow their results with interest and profit. While this work is going on and until definitive answers and techniques are available, we must develop a simple formula that can be utilized to assist doctors and their personnel in handling this aspect of the doctor-patient relationship with more skill, smoothness, facility, and success.

To be practical I have put down some rules, which, if followed by the doctor and his secretary, will create a more harmonious attitude between the doctor and the patient, and a more satisfied and sympathetic feeling on the part of the patient.

1. The doctor must attend to the physical features of the reception room, but more important, to the techniques of scheduling and handling patients by his employed personnel.

2. The physical facilities should be appropriate to the type of practice and to the clientele and should express the dignity and serious nature of the practice of medicine.

Past President, American Academy of General Practice.

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3. Whether you divert your patients with tropical fish, soft music, the latest literature, or coffee is less important than that you show real concern for any discomfort or inconvenience caused the patient by forcing him to wait or waste time waiting for you.

4. You must form a set of rules for your secretary to follow and see that she follows them. If she is not interested in patients as persons, if she is not interested in running a smooth and pleasant office, if she is not interested in creating a pleased appreciative attitude in your patients, fire her. Fire her now and get someone who will cooperate. Neither you as an individual entrepreneur nor we as a profession can afford to tolerate an indifferent attitude in ourselves or our employees. Let your secretary know what an important job she has in creating public and patient goodwill and get her cooperation in developing techniques of handling patients. With intelligent cooperation and understanding, with the realization that it takes brains, tact, sympathy, and understanding to function as a successful office secretary these girls can develop remarkable interest and skill in this area and will derive greater pleasure and satisfaction from their work.

Following is a list of suggestions for doctors' nurses and secretaries in handling waiting patients: Keep the reception room comfortable, neat, and clean. This should be obvious, but apparently it is not, judging from the many messy, close, and uninviting reception rooms I have seen.

Schedule appointments. There are a few doctors who still keep hours from 2 to 5 p. m., letting patients drop in promiscuously. Fortunately, few doctors insist on retaining this obsolete technique. Your secretary not only should schedule appointments but should schedule them realistically. She should study the actual amount of time required for various patients and various procedures and then schedule the patients when it is anticipated that you will be able to see them.

Usually, the patient telephones for the first appointment. Great attention should be paid to your secretary's telephone technique. The phone should be answered promptly. The secretary should act as a person; she should give her name, i. e., Miss Stetson or Miss Barbee, not be just a voice in the earphone of the receiver. She should get into the spirit of making the patient feel he is important. She should work out the most convenient time for the patient. She should treat the patient as a person, ask for his name and call him by it, and, at the close of the conversation, thank him and call him by name again.

When a patient arrives at the doctor's office his arrival should be recognized as soon as possible. Recognize the patient by name in a pleasant, friendly manner. The secretary should have a friendly smile. If she can't smile, have her practice at home before the mirror. Her ability as a female actress should include the ability to provide a friendly smile at will. Indicate to the patient when the doctor will be available. How long will it be. If it is over a few moments, give a full, reasonable, and adequate explanation. If there is to be any considerable delay the secretary should express her concern and regret and also express how sorry the doctor is that he is having to make the patient wait.

Make the patient feel that his presence in this office is an important matter. If a significant emergency has occurred that may make the delay an excessively long one, give the patient the opportunity of waiting or returning at a more convenient time. It is wise to let the patient know that the doctor is on a humanitarian mission. If the patient has to sacrifice some of his time in the same cause he feels a sense of belonging, of cooperating, rather than one of resentment. We recently had a patient-relationship failure in our office on this very account. A busy executive made an appointment for 10:30 in the morning. He and I were both on time. He was ushered into an examining room and asked to take off his shirt. At this very moment a frail, pale, weak, and frightened young woman who was hemorrhaging severely was unceremoniously carried into the office by two extremely excited men. My secretary immediately put her into another treatment room, and I promptly focused my attention on stopping the hemorrhage and caring for the woman. It took approximately 35 minutes to stop the hemorrhage, make arrangements to have the patient sent to the hospital, and arrange for a transfusion. In the meantime, our busy executive was chilling his back and chest in the examining room. During the proceedings my secretary poked her head into his room and announced, "The doctor is busy with an emergency and will see you in a minute." Some time later he poked his head out the door and announced to my secretary in very irate terms what he thought of secretaries and doctors that made busy men wait, that he was going to miss an important appointment, and that if this was going on very much longer he was going to get out of there. She did coax him to wait, but when I saw him he was extremely upset. He "told me off" in strong terms. His words and behavior stimulated a marked anger reaction in me, and I am sure that I was belligerent in my answer. However, I told him straightforwardly what had happened and that if I hadn't taken the time to stop the hemorrhage, the woman probably would have bled to death, that she was on her way to the hospital to get a transfusion, and that if he had an appointment that was important he could keep it and I would meet him at noon or tomorrow morning at 8 and we could finish the examination. He said, "No, go ahead." So we went on with the examination. A few minutes later I said, "You know, it upsets me greatly to have to make a patient wait, but I certainly have no control over emergencies of this nature." He softened up a little, and so did I. Later, he told me the appointment really wasn't important, he was just going to walk around with the pro at the golf club to see if the greens were going to be dry enough to open the course for the week-end. I apologized again for making him wait. That afternoon a box of chocolates and a nice note came by special messenger to my secretary apologizing to her for his angry words and impatience. By this means he demonstrated that a feeling of guilt and apology had been substituted for the feeling of resentment and hostility toward myself and my secretary. How much better it would have been if my secretary had taken the time in the beginning to give him a full explanation of the cause for the delay instead of waiting until his resentment and hostility had been built up.

We have made the discovery that patients like to have something they can take away from the doctor's office. Many pamphlets for this purpose are being made available by the A. M. A., the Cancer Society, the American Tuberculosis Association, and other such organizations and health agencies. Let me warn you about such reading matter for distribution. You must inspect and read them carefully before you make them available for your patients. Some of the pamphlets are highly respectable, attractive, educational, and informative, but a lot of them are not. Some of them are the very kind of thing we don't want patients to read.

Numerous other aspects of the duties and functions of the secretary and nurse should be carefully studied and taught. Doctors must be reminded that each new secretary and nurse must be taught the whole thing over again. Unfortunately, some of us have taught our first few secretaries good practices, but after a while we make the assumption that these techniques come intuitively. They often do not. This coaching and teaching can become tiresome and discouraging, particularly when one is busy or if there is much of a turnover in personnel. Have you wished, as I have, for a little primer for nurses and secretaries on the matter of handling the patient in the doctor's office? Some of the texts on office nursing have chapters on this subject. They help but are not sufficient and do not have the latest and best public relations approach to this problem. The Ohio State Medical Association has published a six-page pamphlet, "A Date with the Doctor," which is a splendid beginning. Starting with the November issue, *Medical Economics* is repeating a series of articles published several years ago, "Letters to a Doctor's Secretary." I recall this series as being quite worth while. Until an adequate text is available, I suggest that the doctor supply his secretary with a copy of Dale Carnegie's book "How to Win Friends and Influence People." About 10 years ago I read this book and found it had numerous practical and worth-while suggestions for handling persons. Recently I was impressed when one of the popular magazines asked a number of successful business men what books had contributed most to their success. I was surprised to read that "How to Win Friends and Influence People," was one of those listed most frequently.

I have found it valuable to have a conference once a month with the entire office staff. The most pleasant way of accomplishing this is to have a luncheon together. During lunch we discuss problems of practice. The secretary and the nurses bring up

questions and offer suggestions for improvement in the handling of patients. We criticize each other and ask each other why we have done certain things in certain ways. We find we develop a spirit of teamwork and mutual understanding. These little sessions have been practical and constructive.

It is fun to develop good public relations in the practice of medicine. In the reception room this means minimum waiting for patients and a sympathetic appreciation of the annoyance and inconvenience caused by the unavoidable waits necessitated by the nature of medical practice. When delay does cause patient resentment and hostility, it correlates more with the unsympathetic attitude of the doctor or nurse than to the duration of the delay. Good reception room methods and practices and techniques can and must be applied in every doctor's office.

THE INDIVIDUAL PHYSICIAN'S ROLE IN PUBLIC RELATIONS

Charles R. Henry, M.D., Little Rock, Ark.

One of George Bernard Shaw's great plays is called "The Doctor's Dilemma." The dilemma of the physician in that play is between ethics and emotion. The situation in which the individual physician finds himself today might revive that title, because he is torn between the demands of his practice and his responsibility as a member of modern society, and has come under sharp attack in both roles.

On one hand, the modern practitioner is faced with an almost sainted popular figment, the old family practitioner—the horse-and-buggy doctor with his little black bag—and with a professional training in many cases somewhat smaller than that little bag.

"Old doc" is the man around whom more stories have clustered than any figure except Abraham Lincoln. He was mellow, all-wise, and infinitely versatile. He discussed politics, the new minister, and town improvements with all comers. He is popularly credited with the ability to manage the most difficult deliveries, to perform miracles of surgery on a kitchen table, and to do entirely without sleep. He took his pay in chickens, hams, and cordwood; seemingly he had no need of cash, and consequently never met any objections to his fees. Just when he ate, bathed, and studied new developments in medicine is not made clear. Perhaps he read THE JOURNAL in quiet moments at the school board, church vestry, and foreign mission meetings he attended by the dozen, in the legend.

When we are criticized, we are very often measured against the ever-lengthening shadow of "old doc."

On the other hand, there is the currently popular medical model, the "man in white." This is a crisply efficient figure, antiseptic to the roots of his hair, delving deep into the stream of medical research, master diagnostician, compounder of miracle drugs, medical engineer in command of cyclotrons and bronchoscopes, surgeon extraordinary, and psychiatrist supreme. With a *Reader's Digest* editor at his elbow, he puts off death in a wholesale fashion, straightens crooked limbs, and runs a marriage counselling service. This paragon of modern, atomic-age medicine provides the second mirror against which we popularly are measured.

You and I know that either of these figures is a practical impossibility, although there are elements of truth in both pictures. As I see it, the individual modern physician must draw from each the elements he recognizes as true and desirable and adapt them to the present, real situation. He must pattern his approach to his patients, to his community, and to his profession on a practical compromise somewhere between these stylized portraits. To present the best picture of his activities and aims, the individual physician's public relations program must begin in his office and at the bedside of his home and hospital patients.

Recently I made a quick survey in Little Rock, asking for frank expression from a young minister, the president of a service club, a radio executive, the president of the chamber of commerce, and chairman of the Community Chest. After they recovered from the surprise of a physician asking them for an opinion, each one voiced almost exactly the same comments, and these comments confirmed the findings of more thorough opinion checks in other towns and cities.

They agreed that too many of us give at least the impression of disinterest and aloofness; that we are impersonal, hurried, and brusque; that we seem eager to get them out of the office and to get on with the "needle line" in the waiting room; that we fail to show interest in them as a whole person and as a sick one in need of considerate attention. As individuals, we must recognize that we present individual impressions to our patients. Each one of us must study his own quirks, mostly developed long before he ever decided to enter the field of medicine, and, since self-examination is difficult, each of us should probably present himself before an informal personality clinic drafted from intelligent associates, both professional and lay.

"Old doc" was warm and friendly. We must try to recapture some of his warmth and sympathy. We must re-create the atmosphere of confidence and warm interest he generated, even though it may take real study to develop such techniques. I am not suggesting that we enroll at active schools; rather I am urging that each of us examine his attitudes and take the trouble to show the deep concern that most of us undoubtedly feel for our patients and their problems. The problem of frank discussions of fees has already been covered, and there is no point in elaborating on that.

The second general charge, I found, was that physicians had retreated into their offices and out of their communities. Our lives are not bounded by medicine: neither are our responsibilities. The demands of a heavy practice in a time when we are slowly emerging from an over-all doctor shortage, particularly of general practitioners, make it easy and natural for most of us to really believe that we scarcely have time for our own families, much less for community activities outside of our ordinary charity and clinic work.

Most of us have lived since our student days largely in the society of our own profession. We were graduated to the company of fellow internes and fellow residents. The demands on our time during our training period were such that we tend to be self-centered and even ingrained. We have been trained from medical school on how to use our own special vocabulary and to limit ourselves largely to our own literature. In the widest social sense, we can reasonably be accused of lopsided development, as a hod carrier develops one immense shoulder.

The chairman of the Community Chest complained to me that there is not one physician on the board of directors of the Chest. Even he harked back to "old doc," and remembers that 25 years ago there was never a community enterprise launched without "Dr. Runyan" in the forefront.

Physicians in every community can answer that they are expected to carry out many of the day-to-day activities supported by Community Chests, but other Chest workers can reply that they need the planning aid physicians, and physicians only, can give to the direction of such social service activities. In my own town, because of a rotating membership on a Community Chest board, it was pointed out to me that our profession was put in a bad light with more than 2,000 persons who serve in the drive every year. At the risk of making social distinctions, I should point out that these are the same 2,000 persons who influence much of the thinking of our community. It seems imperative to me that each of us must put community leadership meetings, community work, and forum activities into our appointment books along with our professional appointments. All of us can plan our time a little better to include these. The assumption of community responsibilities will work for our profession in two ways: it will undoubtedly increase the efficiency of our community agencies, and it provides one of the most wholesome and most effective public relations activities that any practitioner can undertake. Let's switch from the country club house committee to a Boy Scout council.

For hypothetical purposes, let us assume that the individual physician has created for himself the best possible individual public relations atmosphere in his practice and in his community. We will say that he is the local Dr. Christian of radio fame among his patients and his townsmen. What are his further responsibilities to help create a satisfactory public attitude toward the profession and its place in our whole way of life?

President, Arkansas Medical Society.

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Another speaker, a layman, speaking to a large county medical society, has pointed out that in the last two generations profound changes have taken place in the situation of any person in our society. He pointed out that a century ago three out of four persons in America were, in one way or another, self-employed, and that today very few actually provide and control the tools and the situations in which they are employed. Like it or not, the individual no longer controls his destiny in many areas of his life, and the only way he can shape that destiny is to join with others in the same situation. That statement applies perhaps in a lesser degree to the modern individual physician. He can only go so far entirely by himself.

"Old doc's" office and his patients' bedrooms provided the whole setting for his practice. Such instruments and diagnostic aids as he owned represented his own investment and concern. Today, all of us in the practice of medicine move between our offices and extensive diagnostic and treatment facilities provided by generous persons, by church controlled groups or by tax supported governmental units. While we mostly direct the actual use of what I might call the heavy tools of medicine, we do not own them. The use of them is granted to us in the interests of better medical care for everyone, not simply to provide us with a better livelihood. They are ours on sufferance, and the public's attitude, engendered by our use and direction of them, has a great influence on how liberally or how niggardly replacement and expansion of such facilities will be.

Word-of-mouth and the weekly newspaper were about the only mass media of communication that touched "old doc's" life. In the last two generations, as has been pointed out numerous times in these discussions, the great press services, the movies, the radio, and now television, have made mass communication widespread and instantaneous. The individual can do little to make use of these great forces in our cause by himself. He must, therefore, join with other physicians to create the widest possible atmosphere of good public relations. We have seen how quickly isolated instances of medical wrong-doing are passed from coast to coast and across the oceans. Unfortunately, we rarely see their counterpart in reports of medical well-doing.

We also know that a favorable widespread public relations atmosphere can be created—if it is backed up with good performance. In my own lifetime, I have seen the Rockefeller family changed in the public eye from the murderers they were called after the Ludlow mine massacre in Colorado to outstanding public benefactors, enjoying universal esteem and even affection. No Rockefeller pulled the triggers at Ludlow. They may have been responsible at long range for the policies of management that led to the massacre. The change was brought about by trained consultants, who not only spread favorable accounts of their activities but who helped them to change policies. We, as a profession, have the same type of consultants at our command, but we cannot get the greatest results from their services unless each practitioner joins wholeheartedly into his county medical society, his state society, and, through them, into the American Medical Association. The individual has no right to complain that county, state, or national policies are wrong, unless he had been present at county or state meetings to help shape the policies.

I wish I could say that we had been highly successful in stimulating individual physician participation in our public relations clinics in Arkansas. Unfortunately, I cannot. After our first state rural health conference in August, which was highly successful from the viewpoint of layman participation, with 524 lay leaders in attendance, and with only 100 physicians present, the Arkansas Medical Society set up six Sunday afternoon public relations conferences at convenient area centers of our state. (Incidentally, we had the fullest and finest cooperation of the press on our rural health conference, proving that the papers are eager to feature constructive medical news.) So far, we have held three of these area meetings, with a team of six speakers, followed by an audience-panel forum. At the first session, with a potential attendance of 84 doctors, 23 appeared, and only 6 of that number were men who are not in regular attendance at society functions. At the second meeting, with a potential attendance of 104, only 22 came. At the third, with a 64 potential, 12 appeared. I have had no chance to compare these participation percentages with such activities in other states. I must admit that, as president of the Arkansas society, I was appalled at the apparent apathy of the doctors in our state.

It may be that we can enlist those who are attending as missionaries to the absentees, or it may be that we should employ paid personnel as "detail men" to carry the urgency of the program into the office of every physician in the state. However it is accomplished, it must be done, and our leadership in the county and state societies must see that every doctor participates to the best of his abilities. It is unlikely that we can require attendance as do unions, but we must get together.

It is easy to fall into catch phrases, but we have seen how damaging catch phrases, such as "health is the people's business," the slogan of the National Health Assembly in 1948, can be. Perhaps we need a plaque prepared for every physician's night table, bearing the slogan used on a revolutionary flag, saying "me must hang together, or all hang separately." Whatever the means, we must reach every physician practicing and draw him into our county and state society activities, not only for his support but for the benefits to be obtained from his thinking, and to show him that our democratic processes, put to work both in and out of the society, are the best answer to charges of administration by clique.

To summarize briefly, I feel that the individual physician can play a most worth-while role in creating a reasonable and favorable public relations atmosphere through self-appraisal, self-improvement and cooperation both in his local community and the larger c mmunity of his fellow practitioners.

Perhaps John Donne summed up our situation best of all in the early 17th century, when he wrote "No man is an island entirely of itself. Every man is a piece of the continent, a part of the main. If a clod be washed away by the sea, Europe is the less, as well as if a promontory were: as well as if a manor of thy friend's or of thine own were: any man's death diminishes me because I am involved in mankind, and therefore never send to know for whom the bell tolls: if tolls for thee."

FEES SHOULD BE NO MYSTERY

Harlan A. English, M.D., Danville, Ill.

"The love of money is the root of all evil." (Timothy I). Some, but by no means all, of the problems of medical practice are attached to this root. Certainly, it is good to have money and the things that money can buy, but it is good too to check up once in a while and make sure you haven't lost things that money cannot buy—the love and appreciation of friends and neighbors.

Some say that the young men in practice show a lack of feeling toward their patients. I say, some of the older doctors do the same thing. If this is true, the blame would appear to lie in the fabric of our social order. Despite all so-called modern techniques, the wrong types of young men must be getting into our medical schools. The medical educational system, as it is geared today, is turning out graduates untutored in the art of medicine and totally ignorant of the social and economic structure in which they must serve their fellow men. If this training continues unchanged, each new crop of M.D.'s will further complicate all physicians' public relations problem.

There is no mystery about doctors' fees. The good doctor tells his fees, and the average patient inquires at the end of a visit as to what the doctor's charges are. Trends in treatment, trends in political manipulation, trends in Truman dollars come and go, but the sick will go on forever. New drugs, new diagnostic tools, and new research progress constantly improve each doctor's practice and his ability to help the sick who come to see him, but from the patient's viewpoint things will probably always be unchanged.

The patient has three big questions: 1. "Can it be fixed or cured?" 2. "How long will it take to get over this?" 3. "How much will it cost me?"

The first two questions are strictly scientific from the doctor's standpoint, but the last one is equally important to the patient. The answers to the first two questions must be as variable as

Chairman, Committee on Rural Medical Service, Illinois State Medical Society.

illness and as persons are variable, but the answer to the last one should be, and ordinarily is, reasonably arrived at.

From the secretary of the county medical society, nearly anywhere in the United States, a young doctor can get the fee schedule of that particular county. From talking with his fellow practitioners, he can quickly learn what, if any, variations are made in that schedule. It will always be a good rule for any doctor not to undercut the average charge in his community and not to go too far above it. Ninety per cent of the patients want to pay reasonable amounts to their doctors for their services. I do not know the recipe for success, but I can tell you the recipe for failure. It is "Try to please everybody." Some patients cannot pay, and it is better for both the patient and the doctor that the fees be cancelled than ever "marked down." The doctor who "marks down prices" quickly gets "marked down" in the patient's eyes, whereas the doctor who cancels charges to the deserving patient, at the time of need for his services, never or rarely is depreciated in the patient's eyes.

Since many families, with increasing federal withholding taxes already here, are forced to budget all of their earnings, it is necessary that physicians assist their patients in this regard. In obstetrics especially it is good practice for the young persons and for the doctor to agree on a monthly payment schedule suitable to the patient's economic status.

For example, at the termination of the first visit and examination, the wise doctor will tell the patient, "My usual charge for your type of case is $10 for this visit, and $10 or $15 each month for six months. This charge will include two months follow-up care after your baby is born, barring some unusual or complicated happenings, which can occur only about twice in 100 cases. Is this arrangement satisfactory with you?" If there is any reason that this usual routine cannot be followed, the patient usually says so, and the agreed-upon method of payment is noted on her record then and there before her eyes. The same type of statement can be used to terminate any doctor's rendering care to his patient. If any unusual drug, laboratory, or x-ray service is rendered, the patient appreciates and deserves a short explanation as to why the extra charges are made.

The success of any practice, both from the patient's and the doctor's standpoint, demands that sufficient time be taken by every doctor to discuss with each patient in simple language his ailment, his treatment schedule or response, and his social and economic problems incident to the illness. Fees are at least one-third of every illness in the patient's eyes.

What about fees for operations? Largely, that is the area in which doctors are given, at times deservedly, a black eye. In my opinion, no doctor can deserve that dignified title who charges any person more than one month's income (after taxes) for any type of operation. If that simple rule is followed and the operating physician explains to the patient what is included in the fee, there will be fewer than one-tenth of one per cent complaints by patients.

Tell the patient that the charge for anesthetizing him will be $20. Tell the patient that the charge for an assistant, required for his personal protection as well as for the doctor's help, will be $25 or $50. Tell him that the usual charge for the repair or removal of this or that organ in this community is $125, $175, or $250. When fees are honestly explained and their total agreed upon prior to operation, the problem of collections is virtually nonexistent.

In cases of emergency, the doctor's first responsibility is to care for the patient's needs. After this is done, either he or the patient may bring up the matter of fees. In either situation, it is incumbent upon the doctor to explain to the patient the usual charges and why they are made. When such a procedure is followed, little difficulty ensues in collecting for services rendered.

"Fee splitting" still goes on and will go on as long as two or three per cent of the doctors are like an equal or higher percentage of the bankers, lawyers, or politicians. Human nature, being what it is, insures that the unscrupulous will always be with us. Fee splitting is bad for the sick, because it leads, through love of money, to meddlesome, unnecessary treatment and operations that promise more to satisfy the participating doctor's curiosity and temporarily increase the size of his pocketbook than to help the patient.

Patients may suspect that their money is being "divided up," but basically they want to know, "Who gets how much for doing what?" When they eventually find out that physicians participate in fee splitting, the reputations, the dollar intake, and perhaps even the conscience of the participating doctors usually suffer. Needless to say, the increasing "take" of the federal tax collector is going to make operating and treating for money alone an activity of diminishing value to doctors.

Display on your own desk the A. M. A.'s placard addressed "To All My Patients," which says, "I invite you to discuss frankly with me any questions regarding my services or fees."

The two most important elements in America's progress have been the spirit of religion and the spirit of science or knowledge. The spirit of religion went out of our federal government nearly 20 years ago and has been replaced by the greatest collapse in morality in government seen since the decline of Rome. The spirit of knowledge or science has pushed forward, but, unless we increase in wisdom, which is basically a religious force, an increase in knowledge alone will only bring sorrow for us as persons and as a free nation.

One hundred and thirty years ago, John Quincy Adams' code was: "The more of pure moral principle that is carried into policy and conduct of government, the wiser and more profound will that policy and government be." John Quincy Adams' philosophy is eloquently true in the matter of fees charged and collected by doctors. The one unpardonable sin in medicine is the failure to consider at all times what is best for the patient from the standpoint of diagnosis, treatment, and fees.

The money we collect from our patients must always be reverently regarded as only a partly satisfactory medium by which patients can express their grateful hearts and souls, and we doctors must, in humility, accept fees for acting as guides to Divine Providence in His works.

THE "REGARDLESS OF ABILITY TO PAY" IDEA

Joseph F. Donovan, San Jose, Calif.

I appreciate very much the honor of being asked to participate in this Public Relations discussion and to report our experience with a public offering by the local county medical society of a guarantee to provide medical care for all, regardless of the ability to pay, medical care being that portion of the services rendered by physicians.

I do not need to tell anybody that everyone has always loved the game of getting something for nothing. Today's lure of the "daily double," the "giant jackpot," and the "royal flush" have had their counterparts in every age and every era from the time Nero rolled dice until the present-day period, when radio's telephone guessing games offer as high as a million dollars in prizes —and all for free!

It was in December of 1946, however, that many critical doctors in the San Francisco Bay area thought that that month would go down in history as the greatest on record for giant jackpots. That is the month that the Alameda County Medical Society took a quarter page advertisement in all of the daily newspapers in their county in an effort to reach a reading audience of over 750,000 persons, to tell them that anyone who needed medical care and had to have it without cost could get it simply by calling the office of the county medical society and stating their case.

I saw the advertisements. They were very attractive. They commanded attention. The top portion of the ad had a large facsimile of a page torn from the classified want ads section. "Wanted," said the headline, "anyone needing the services of a physician and feeling that they are unable to pay for it. Immediately contact the Medical Society. Call Twinoak 3367."

Those advertisements created quite a stir, not only in the county but throughout the state. Even the governor of California got unhappily enough concerned about them to issue some pretty strong critical statements to the press. He said he did not like them, and he did not believe them.

But the advertisements and their offer of guarantee of medical care for all were not fake, not a publicity gimmick. They were

Executive Secretary, Santa Clara County Medical Society.

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set in a firm foundation. Even five years later, the promise of the offer still stands good, and, on top of that, the offer has been tried out and tested and found successful in many counties other than Alameda.

My county, Santa Clara, for example, was one of those that agreed to follow the thought patterns set by Alameda and apply them to our own particular situation. We have about one-third the population and about one-third the number of physicians that Alameda County has. We have 300 doctors and 225,000 persons, if you are interested in statistics.

We have long since come to learn that these advertisements are not a trick or a false propaganda device. They are a means of giving current-day action to a promise centuries old, the promise contained in the oath of Hippocrates. Truly speaking, this "guarantee offer" is merely a matter of putting new words to old ideals.

In our own county, we did not use duplicates of the Alameda advertisements. We prepared a set of our own. First, the executive committee and the public relations committee decided they would adopt the principle contained in the guarantee and set up the mechanism to handle the calls that would come from the public. Before the first advertisements were printed, our plans were carefully correlated to the work done in the social service department of our county hospital. We agreed to work together very closely and consolidate the findings of our experience with the hospital. When the ads were ready, enough proof copies were made for one to be sent to every member of the county society, after it went before the council of the county society. The council, composed of 14 members, received the first copy, and it was not a very comfortable half-hour discussion. There are always one or two who are opposed to what the general trend seems to be, and one of the members of the council said, "Well, if ever I have seen anything crazy, this is it, because I do not know how we can possibly take care of the number of persons that will be rapping on your door tomorrow morning after that first advertisement comes out."

Fortunately, the aggressive public relations committee chairman put it on a personal basis, as he said, "Fred, you are a specialist. We might have to call on you as a result of one of these advertisements. Fred, have you taken a few patients and not charged them anything?"

"Of course, you know I have," said Fred.

"Well," he said, "suppose we call you tomorrow and say we have three cases that are in your specialty, will you take care of them?"

"Sure."

Then we went around the room—there was no question about it.

They did not have too much trouble handling the inquiries that came in, but is it not much more important, in such a functional matter that the physicians believe in their hearts that they can render this service to their individual patients as they can? What difference does it make if it is offered on a general basis? I was not concerned with whether we could handle the inquiries. I was concerned as to whether our physicians would support the program.

The council voted approval. Copies of the ads were mailed to every member, with a ballot for their response. They could cast their votes three ways: (1) in favor of the general advertising; (2) in favor or against publicizing the guarantee for care; and (3) in favor or against the publicizing of our fee complaint committee service. Returned ballots came from approximately 50 per cent of the membership, and the overwhelming affirmative vote was 125 to 4 for the program.

On April 19, 1949, the first advertisement appeared in the morning paper, and we held our breath. That afternoon we got two calls. The next day, one more; the third day, another call; but, by the end of six months, there had only been 59 calls altogether, and one-half of those were requests for obstetric care from medically indigent nonresidents who were denied care because of certain county ordinances. (That problem has since been licked, by the way.)

There has never been a time when, possibly with one exception, we weren't able to comply, and that was the case of the lady who came in with tears in her eyes and said she had a difficult problem. She told me about her three children and that she needed three surgical procedures. She said that she felt that she could call on the medical society and they would help her.

I said, "What sort of surgery are you talking about?"

She said, "My youngest son needs to be circumcized, and my oldest boy needs his tonsils out, and my husband needs to be sterilized."

Our ads were not a "one-shot" offer. The offer was repeated in 12 consecutive advertisements. Special feature stories about the program appeared 12 times in three different newspapers during a two year period. The offer still stands, and the program seems to be working well.

Requests come to the society from all sources, and not necessarily from the newspaper advertisements alone, for the program has been strongly called to the attention of every local social worker, to all the public health nurses, the public school nurses, school department heads, the Red Cross, the voluntary health agencies, and every other unit that might ordinarily come in contact with persons needing medical care.

We have estimated that if each of our 300 doctors were willing to take three cases a year, we would be able to handle a load of approximately 900 requests, and so far we are not even approaching 50 per cent of such a possible volume. The original vote of the Medical Society obligates every member to accept a reasonable number of cases.

Our society staff consists of myself and one secretary. We handle all of the requests. We get assistance from our bureau of medical economics staff of six, which is in the same office. It is a bureau that is operated on the principles set up by Stanley Mauck's organization. After the requests are evaluated, doctors are called in rotation, and in only one instance have we ever had a refusal to take a case. All of the rest have said yes, in what we believe to be a phenomenal acceptance average of approximately less than 60 seconds per request.

I told you in the beginning that I was very critical and apprehensive when this program started in Alameda County. As you see, I have reversed myself completely through our own experience with it. I think it is the best plank that a county medical society can have in the public relations platform. I don't think that there is anything that could be devised that will be more effective than this particular program.

One instance was called to my mind because of the comments of Dr. Cyrus Anderson this morning, when he referred to the incident of the newspapers playing up the need of someone for medical care, the little child about to die, and the usual thing that goes along with that.

Actually, such an instance in our county in 1948 was the thing that made us agree to go ahead with this guaranteed medical care program. A youngster about 6 years old was declared to have nephritis, and it was said she would die if she didn't get the serum, and she needed the services of a physician. The services were being rendered by the physician, but it was one of those sensational, well-written front page news stories that snowball. It appeared in the newspapers in our town and was attracting attention in every state in the Union, in Mexico, and in Canada, and $14,000 rolled in to help that little girl.

That was not enough—an Army sergeant in Tokyo broke up a crap game and sent us the $143.

Twice since then two newspapers have had an opportunity to duplicate their 1948 experience, but they have not done it. They have contacted our office, or the president of the county medical society, have gotten the facts of what needed to be done, and have gone along by helping to see that the family got the care that was needed, which the papers stated was more important than running a sensational front page story.

When we come face to face with some of the "do-gooders" who tell us there are dozens of persons in this town going without medical care, we are able to say, "That is interesting to us; would you get us the name of the first lady you would like to have taken care of in the group you are talking about?" In one instance, we needled a small group for three weeks trying to get the name of the first person they were talking about. It is surprising but very pleasing to see the reactions when we follow up on the false claim that there are hundreds of persons going without care. At the same time, it is a great source of satisfaction when you find someone who really needs it, who is going without it, simply because he just does not know where or how

to find the physician who will be willing to take care of him without charge.

Our doctors are not operating the jackpot I referred to earlier. They are just being good doctors and good neighbors. We believe that medical public relations are better in those local counties where the guaranteed medical-care-for-all plan exists, because in those counties the ethical physican, who will abide by the solemn promise never to turn his back on human suffering because he might not get paid, is not a mythical character. He is not someone whose name can't be remembered in times of sickness or apparent need. He is easy to find, because he is the total local medical profession. He is the county medical society.

PR FACTOR IN COLLECTING BILLS

Stanley R. Mauck, Columbus, Ohio

My association with the profession has been influenced, in part, by a bit of bad medical public relations. A member of my family had been under the care of our family physician, and, on the occasion of an office call, he advised consultation. He walked us across the street to a specialist, who made a brief examination. I received a bill from the family doctor marked "for professional services rendered." The amount seemed reasonable, considering the fact that the service of a specialist had been involved. This, you understand, happened when I was uninitiated into the ways of professional practice.

Thirteen months afterward I received a bill from the specialist for $25. I was angry, and I called the family doctor. "Yes, the charge was in order," he reported. His bill did not include the specialist's fee. He calmed me down somewhat, but he himself did not escape some of my resentment for this unexpected jolt. He should have told me at the time that the specialist would render a separate bill, it seemed to me, and the specialist had done me an injustice by his delayed billing. With my check, I enclosed a letter that plainly indicated that the good doctor's public relations had not been enhanced by the transaction.

At the time of this incident, I was giving consideration to starting a service of business management for doctors in Columbus, and the experience helped to confirm my belief that doctors needed my management service. For two years, I operated a private business service for doctors, which, in addition to better control of the doctor's accounts receivable problem, also included income tax work, monthly practice analysis, and a general consultation service in business and professional matters.

During this period I learned a lot about the public relations aspect of medical practice and was challenged by the need for a broader and more comprehensive type of service. The result was the organization, in January, 1935, of the Columbus Bureau of Medical Economics, which was one of the first professionally controlled multiple service business bureaus for physicians in the country. The management service I had previously rendered became a department of the new bureau, to which were added such additional functions as a 24 hour telephone answering service, a collection department, a professional budget plan, centralized bookkeeping and credit reporting.

In 1936 we took dentists into the organization, which is operated as a nonprofit service corporation under official approval of both the academy of medicine and the dental society. It is controlled by a board of trustees elected by the physicians and dentists who are members of the bureau. We have 48 persons on our staff, and we occupy an office suite of approximately 4,000 square feet.

Early in our operations we felt that the bureau's usefulness could be extended beyond the scope of the individual doctor's office and invited the academy of medicine to use our office as permanent headquarters. All of our facilities and personnel were placed at the academy's disposal. For the past 17 years, I have served jointly as director of the bureau and executive secretary of the academy.

Executive Secretary, Columbus Academy of Medicine.

Unquestionably, this close affiliation between the academy and the bureau has been of great advantage to both organizations. It has enabled the academy to enjoy adequate administrative and office facilities to meet the need for an ever-expanding program, and at a cost far below the amount necessary to duplicate the service on an independent basis. It has enabled the bureau to integrate its functions closely with the needs of the profession, with due regard to the public relations factor in all phases of the business service rendered.

Out of this experience I hold a deep conviction that the chief public relations factor in bill collecting relates to the doctor's own office rather than the collection agency. Expressed in another way, we might say that good public relations—like charity—begin at home, and that doctors themselves are responsible for much of the bad public relations growing out of collecting their fees.

The personal experience related above is by no means an isolated case. Long-delayed billing is not so prevalent as it was 25 years ago, but it remains a fundamental weakness in many offices. In a recent county medical society bulletin, a report of the grievance committee was given. Grievance No. 4 related to a complaint about an anesthesia bill for $44.50, received eight months after service. The debtor had no knowledge of the service, and the amount seemed stupendous. Investigation by the committee cleared the doctor, but the report contained two significant comments: 1. Had the surgeon advised the patient about the service of the anesthesiologist, there probably would not have been a complaint. 2. Careless handling of the charge, as reflected by the eight months' delay in billing, contributed to the complaint. This is another typical example of bad public relations unnecessarily incurred by poor business methods in the doctor's office.

Sporadic billing and little or no follow-up of slow accounts are other factors accounting for bad public relations. Delinquency in regular billing begets delinquency in payment. By a loose system of billing and follow-up of accounts the doctor invites slow pay and possibly utter disregard of the obligation. A serious delinquency should not be charged against a patient until he has been made conscious of what is expected of him in the way of payment.

The climax in these situations, public relations-wise, comes when the patient, lulled into indifference by the doctor's unbusiness-like office procedure, suddenly learns that his old account has been turned over to a collection agency. Often such accounts are paid promptly, but with a sullen protest that is harmful to the profession. Frequently they are complicated by complaints, as the value of professional service varies in inverse ratio to the time when it was rendered, especially if the bill has been turned over for collection. An account should not be placed with an agency, and it is an injustice to the patient to do so, unless and until the doctor's own office is certain that it cannot be collected in any other way.

Poor business procedure often backfires against the doctor in another area of neglect. It is not possible for the busy office, especially in larger cities, always to know about the indigent, the medically indigent, and the confirmed hardship cases. However, too often they are overlooked. Failure to obtain adequate information about a patient on the first call is often the cause. It is the responsibility of the doctor's office to determine which are the indigent patients whenever possible and to handle the charge accordingly. There is nothing more conducive to bad public relations than the reaction of the patient when bills of this character are turned over for collection.

There is another category of patients for whom doctor bills often present a distressing financial problem. I refer to the so-called white collar group—the clerks, stenographers, teachers, and low-to-medium-salaried persons. Most of them are self-supporting and manage to make ends meet by careful budgeting; however, a siege of sickness in the family or surgery is often a financial blow. They deserve consideration when costly medical care is required.

These observations are not mere generalities, they are supported by facts, and to get these facts I asked the manager of our collection department to make a careful sampling of the ac-

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counts in our files. The object was to determine why accounts are referred to us for collection. His finding follows, based on 1,612 accounts selected at random from our collection files.

WHY ACCOUNTS ARE REFERRED FOR COLLECTION

Inadequate Handling in Doctor's Office.—There were 656 cases (41%) in this group. Delinquency here was due to delayed or irregular billing, incomplete data when account was set up, charge not made to responsible party, misunderstood services and charges (consultation, anesthesia, x-ray, lab fees, and industrial claims), no discussion about payment arrangements, extreme age of accounts, etc.

Hardship Cases.—In this group, there were 353 cases (22%), including patients unable to pay owing to indigency or medical indigency, illness, age, or domestic problems, and those able to pay adjusted fees, or possibly the full amount, if time or a payment plan were offered to tide them over temporary emergencies.

Dissatisfied Patients.—Of those dissatisfied with services, there were 73 patients (5%), and of those dissatisfied with amount of charges, there were 79 (5%).

"Deadbeats" and Reasons for Delinquency Not Known.—There were 148 cases (9%) of "deadbeats" and 303 (18%) cases in which the reason for nonpayment was not known. The latter group paid or agreed to pay without protest. Their delinquency was probably due to neglect or "slow-pay" habits.

These findings speak for themselves and confirm our contention that good public relations in bill collecting begin at home. In the first two categories, we find that 63 per cent of the accounts surveyed represent delinquencies that might have been controlled in the doctor's office. Expressed another way, and generalizing from this survey, it indicates that 63 per cent of the medical accounts referred to collection agencies are needlessly subjected to this PR hazard. If this seems high, let us be conservative and adjust this figure to allow for error and make it 50 per cent instead of 63 per cent. The result still stands as a severe indictment of the way professional men handle the business side of medical practice.

Now that we have challenged the doctors to do a better business job in their own offices, in the interest of better public relations, let us examine the part that agencies play in this picture. In the first place, it should be acknowledged that there is a definite place in professional practice for use of a reliable and properly operated collection service. Persons who are normally self-supporting and pay for other services and commodities should also pay the reasonable cost of medical care. The willful "deadbeat" and the irresponsible patient should not receive "free" medical care through nonpayment of their account. To permit them to do so is gross discrimination against the punctual patient. The judicious use of a responsible collection service is advisable not only to protect the doctor's financial interest but also to insure fairness to the conscientious debtor who pays satisfactorily.

Granting this premise, how, then, should an agency be selected so that the vital public relations factor can be protected in this delicate service?

There is much to be said for the professionally controlled collection service. The number of such bureaus is increasing, prompted largely by the profession's growing consciousness of the public relations factor in bill collecting. The pattern of the multiple service bureau, which we long ago established in Columbus, has also demonstrated its usefulness, public relations-wise, in the operation of services other than collections. The emergency call service is extremely important. Centralized bookkeeping and professional management both help to eliminate some of the previously mentioned unbusiness-like methods that alienate patient good-will. Our professional budget plan contributes to good public relations. Our slogan is, "We would rather prevent bad accounts than collect them." One of the great assets of the professionally owned or controlled business bureau is its ability to do a professional relations job in every service rendered.

Last year Mr. Rember, of the A. M. A. Public Relations Department, made a survey among county medical societies to check their attitude toward collection services. One question was: "Do you think a society operated collection service can do a better job public relations-wise than a private bureau?" Sixty per cent of the replies said "yes," thirty per cent said "no." Ten per cent had no opinion.

The general feeling was that the professionally controlled bureau better understands the special approach and the methods required to protect the doctor-patient relationship and preserve good-will. It is presumed that these bureaus, because they operate within the profession, will be more considerate of the patient and deal with him on the basis of protecting the vital public relations factor. It is pointed out that the commercial agency is likely to be exclusively concerned with the money return and to exact every possible dollar, regardless of the circumstances back of the delinquency.

My observation, however, is that not all professionally controlled bureaus are as public relations conscious as they should be. Some appear to justify their existence by cut-rate collection costs, which is wrong, for this factor should never be the primary consideration in operating a bureau. And the methods used by others are only slightly less objectionable than those used by many private collection agencies. The majority of such bureaus, however, deserve the full support of the profession, because they know and understand the vital importance of public relations in collecting doctors' accounts.

Since it is not practical to organize professionally controlled bureaus everywhere, certain societies are making another approach to the collection agency problem. Mr. Rember's survey revealed that the private bureau, of a certain type, was favored by 30 per cent of the societies responding to his questionnaire. Some are unquestionably operating in a thoroughly satisfactory manner and doing a good PR job. This type of bureau is usually approved by the society or granted official recognition in return for concessions in operating policy that meet the special needs of the profession. A special committee of doctors may serve as liaison between the society and the bureau to consult with and advise the owner regarding policy and operating procedure. By group action, members of a county society may thus dictate and control the collection methods of a reputable private agency that is willing to cooperate with the society, to the mutual advantage and benefit of both parties. Such an arrangement is worthy of consideration when local circumstances are favorable.

I have been connected with business bureau operations for 19 years and have studied this service in many cities. We have a National Association of Medical-Dental Bureaus, composed of both professionally controlled and privately owned bureaus that make a specialty of rendering business services to doctors The purpose of the association is to develop higher standards in medical business bureau work, to promote a better understanding of how the special needs of the professional office may be met, and to exchange ideas for greater operating efficiency. The association has performed a useful function in developing business bureaus that deserve the confidence and support of the profession.

Out of my many contacts with bureaus of both types, I agree that it is possible for a privately owned bureau to serve the profession satisfactorily in the field of collections. To do so, however, the agency must be different from the many commercial agencies that are totally void of any appreciation of the delicate PR factor in collecting for doctors. The management of the agency must know and understand the problems of professional practice and be governed by collection policies that conform to good public relations standards. The form or the type of organization best suited to handle professional accounts may be debatable, depending on local conditions, but what is not debatable is that the factor of public relations is vitally tied in with third party collection procedure and should be of prime consideration in determining the choice of an agency, whether it is professionally or privately controlled.

In our national association work, I have preached this gospel constantly. The professionally controlled bureaus usually follow this principle in collection work. We are endeavoring to have the private bureau use this approach also. It is disconcerting, however, to have some of these bureaus challenge our public relations gospel by insisting that the doctors demand results rather than reports. Unfortunately, this is true in many cases. While the A. M. A. is stressing good public relations in bill collecting,

the "grass roots" doctor does not yet realize that a lot of public relations dynamite is tied up in the way his bad accounts are handled when they leave his office. It is difficult to expect the independent commercial agency to be more public relations conscious than are the doctors themselves.

Where neither professionally controlled bureaus nor approved private agencies are available, what, then, are the doctors to do about their bad accounts? Obviously, it is up to the individual doctor to select an independent collection service that he believes will most nearly handle the accounts in the right manner. Here are a few precautions that it might be well to remember when making such a choice: 1. Select a local agency with a reputation for reliability and good standing in the community. 2. The out-of-state and mail-order type of agency should be avoided. 3. Investigate the methods used, and ask to see the type of first notice and other follow-up material. 4. Check up on the ownership and financial responsibility of the agency and its promptness in settling for money collected. 5. As a general rule do not sign a contract—better agencies seldom use them. 6. Make sure that no legal action, or threat of such, will be taken without your consent. 7. Be sure the agency will be governed by your instructions to collect only within the scope of good public relations. 8. Have the agency agree to report cases deserving your special consideration and accept adjustment, withdrawal or cancellation of an account when, in your opinion, such action is advisable in the interest of good public relations.

If these standards cannot be met by any local agency it is better not to use any collection service at all. Money collected on bad accounts through the tactics of the unscrupulous and hard-boiled collection agency is a poor offset against the loss of good-will for the individual doctor and the profession in general. It should be remembered, however, that the number of accounts requiring collection agency attention can be reduced materially, probably 50 per cent or more, by proper attention to the doctor's accounts receivable problem in his own office. In summarizing these observations of a county medical society executive, we may make the following observations. The manner in which financial transactions are handled between doctor and patient vitally affects medical public relations, and the primary responsibility for this problem relates to the doctor's own office. Failure to recognize the importance of this problem and lack of attention to the business side of medical practice account for much of the bad public relations growing out of charges for medical care.

Fifty per cent, or more, of the medical accounts submitted for collection can be disposed of more satisfactorily at the source. The choice of a proper collection service is extremely important, when outside collection assistance is clearly indicated. Professionally controlled bureaus, particularly those rendering multiple business services, have demonstrated their public relations value to the profession, and their number is increasing. County societies have also found it possible to work out satisfactorily arrangements with acceptable private agencies or bureaus to handle collections and render other services in an ethical manner; an independent commercial collection agency should be very carefully selected when neither of the two preferred types of business services is available.

In conclusion, may I submit these recommendations: first, that the American Medical Association use its facilities more effectively to educate all members of the profession about the PR factor in bill collecting and that it provide from Chicago, through the proper department or bureau, greater practical assistance to county societies that are interested in organizing specialized business services that are adapted to the needs of the profession; second, that state associations, through their journals and other media for influencing professional attitudes, give more attention to the public relations factor in collection methods and that they stress the importance of this subject; and third, that county societies become more alert to the economic aspects of medical practice and that they explore the possibility of solving, by group action, some of the business problems that are vitally related to the preservation of good public relations, particularly in the area of collections.

It is my opinion that the public relations factor in collecting doctors' accounts is of sufficient importance to warrant more careful consideration on all three levels of organized medicine.

WHERE DO WE GO FROM HERE?

Leo E. Brown, Chicago

"Where Do We Go From Here, Boys—Where Do We Go From Here?" was first sung by the doughboys in France during World War I, when they were sweeping victoriously across Europe. They were on the move and wanted to keep going.

So it is with our medical public relations program—it's on the move—much progress has been made—but where do we go from here, boys, where do we go from here? One thing is certain—we have to be continually on the move if we are to attain and maintain medicine's rightful and covetous position in the minds and hearts of the American people.

In an organization as large as the A. M. A., composed of over 130,000 physicians practicing more or less independently, bound together into 1,987 county medical societies and 53 state and territorial societies, we must expect some difference of opinion, some outstanding PR programs, some not so outstanding. In certain areas some county societies are pulling the load of societies less active and alert. Certain states are carrying a portion of the load belonging to other states and occasionally to the A. M. A. The point I want to emphasize is that we are all in this together —each must do his share—as we join forces for better PR.

> A horse can't pull while kicking
> This fact I merely mention.
> Neither can he kick while pulling
> Which is my chief contention.

In order to improve public attitudes toward the American Medical Association, we plan to work directly with the public, with other departments within the A. M. A., with state and local medical societies, and with individual physicians. We also plan to coordinate the Association's programs and policies for improving the health of the American people with other organizations which have similar objectives.

The public relations program of the American Medical Association logically divides itself into two phases: internal and external. The internal phase is concerned primarily with relationships between the A. M. A. and other medical organizations and between the A. M. A. and the individual physician. The external phase is concerned primarily with the attitudes of the public toward the medical profession, either as individuals or as groups. With these thoughts in mind, the Department presents the following general public relations objectives for the coming year. 1. To gain public support for the American Medical Association by informing the people of the policies, objectives, and accomplishments of the Association. 2. To strengthen the support of members for the American Medical Association by making known to them the objectives, accomplishments, and services of their Association. 3. To improve physician-patient relationships by encouraging the physician to administer his services promptly, efficiently, and courteously, with understanding of the patient as an individual, and in line with the first sentence of the Principles of Medical Ethics: "The prime object of the medical profession is to render service to humanity. . . . " 4. To encourage our constituent state and county medical societies similarly to continue and expand their own public relations activities, thereby cementing physician-patient and community relationships at the grass roots. 5. To work toward the solving of the economic problems arising from the cost of illness.

The Public Relations Department hopes to contribute to the attaining of these general objectives by telling the A. M. A. story to the public and the profession through the use of the following PR media. Our weekly news releases on medical science, Association policy, and activities and socioeconomic items affecting medicine will continue to be sent to some 1,350 newspapers, magazines, wire services, and science writers across the country. You all are familiar with the work entailed in publicizing your own state meetings. You can multiply that many times for a national meeting. Last year in Atlantic City 79 writers representing 59 publications covered the Convention and were serviced by our PR staff. Throughout the year many special news stories will be released on the activities of our councils,

Director, Department of Public Relations of the American Medical Association.

committees, and bureaus. We expect to follow up misleading news stories, articles, editorials, and letters to the editors when they are brought to our attention; however, this is a tremendous job and can be handled much more judiciously at the local level.

Special service will be given to state and county societies promoting special medical editions in their local papers by supplying news stories on such subjects as A. M. A. activities and medical progress. During the coming year we plan to prepare a series of feature stories on medical progress, making them available to all daily and weekly newspapers and industrial publications.

The acceptance and support of our literature preparation and distribution program during the past year merits its continuation. Commenting on the brochure "A Doctor For You," one physician said in a letter to Dr. Lull, "Congratulations! This is just what I have been hoping for. This is a real educational campaign that every doctor can be proud of. If our A. M. A. Education Campaign can keep up this high standard of public education, Oscar Ewing will not have a chance."

The editorial on display from the Springfield (Ohio) News indicates their approval of this positive program.

During 1952 we have scheduled five brochures and two magazine reprint mass mailings to the entire profession. These are to cover such subjects as "It's Your A. M. A.," a brochure enlisting membership support of the A. M. A.; "How the A. M. A. Serves the Public," which is designed to inform the public that they are the recipients of many of the Association's activities: "This Is the Code Your Doctor Lives by," which is intended to take the mysticism out of the Code of Ethics and interpret it as a protective code for each individual patient.

"The Cost of Medical Care" and "How to Pay Your Medical Bills" are popular brochures that explain some of the techniques discussed by the panel participants this morning. Other pamphlets such as "What Makes an M.D.," "Help Yourself to Health," and "Medical Careers" will be developed as time, personnel, and budget permit. We also plan two or three pamphlets for the physician and his staff on "Office PR."

The number of reprints from popular magazines to be distributed through our membership will depend upon the number of suitable worthy articles published. We estimate that there will be at least six that will be selected and sent out in two different mailings. The method of distribution will follow the procedure used this year. Pamphlets and reprints will be mailed direct to the individual physician, with order cards for acquiring additional quantities direct from the A. M. A. We should like to encourage state and county societies to promote the distribution of these pamphlets and reprints through their membership newsletters, journals, and bulletins. The A. M. A. mailings will also be sent to many national associations, organizations, libraries, hospitals, and colleges. We hope you will distribute this literature at your rural health meetings, health councils, county fairs, health fairs, public schools, P. T. A. service clubs, and all other outlets at your command.

Publicity service to A. M. A. Councils, Committees, and Bureaus will continue to be an integral part of our PR program. News, radio, television, and photographic coverage of the Rural Health Conference, Industrial Health Conference, Congress on Medical Education and Licensure, Council on National Emergency Medical Service, and the Student A. M. A. will be handled by the PR Department.

I should like to mention that day-to-day activities in the field of radio, television, exhibits, and films are handled by other A. M. A. departments, with the PR Department acting in an advisory capacity.

We expect to continue and expand our service to magazine editors and free lance writers. During the past year, 65 editors and free lance writers received special assistance with writing projects. This service includes information service, manuscript reviewing, and suggesting articles. This service paid off in 60 articles, which appeared in 35 mass circulation magazines last year. Two top-ranking national publications clear all of their medical articles through the A. M. A. office before scheduling them for publication.

In an effort to improve our interassociation relations during the coming year, we propose to arrange for the A. M. A. to be the host of the executive officers of major national organizations in the U. S. We expect to invite such groups as the Farm Bureau, Cotton Council, National Education Association, Parent-Teachers Association, American Association of University Women, the Business and Professional Woman's Association, American Bar Association, A. F. of L., C. I. O., and others to be our guests at 535 North Dearborn Street, Chicago. We have nothing to sell—our only object is to acquaint them with the work of the A. M. A. and how it serves the public and the profession.

Time forces me to only outline other phases of our 1952 program.

We propose to reedit the Association's film, "M.D., the U. S. Doctor," into two or three 10 minute films; to make available 3¼ by 4¼ slides on A. M. A. activities, with accompanying script to all state medical societies for distribution upon request to their component societies; to provide state journal editors with information each month on what's new at the A. M. A.; to continue publishing the "Convention Daily Bulletin," the "Secretary's Letter," and the "PR Doctor Exchange"; and to assist in program planning and implementation as an important part of our field service. We welcome your requests for personal visits and conferences and will make every effort to comply. We will continue our special services to the Secretary and General Manager's Office, assistance and suggestions in the preparation of speeches and articles for the officers and Trustees, and the promotion of our annual PR conference. We propose to: (1) continue the promotion of impartial "grievance committees"; (2) continue the promotion of 24 hour emergency call services; (3) to encourage the physicians to police their own ranks and take disciplinary action against members guilty of unprofessional and unethical conduct; (4) become civic-minded, active in worthy community affairs, and publicly stand for high morals in government; and (5) encourage our state and county medical societies to support and promote other Association activities, such as school health, civil defense, and rural health, as an integral part of their own PR program.

While our office plaque—"To All My Patients"—was made available this year, we sincerely hope that you will incorporate its promotion into your 1952 program. We feel that half of our PR problems result from misunderstandings between doctor and patient and that these plaques can do much to promote doctor-patient understanding, if properly displayed and if sympathetic follow-through is practiced by the doctor.

Perhaps one of the most important phases of our PR program will be the continuation of our National Education Campaign during this coming crucial election year. The defeat of socialism might very well be termed our chief 1952 public relations problem. This must be done at the community level, because national opinion is the sum total of the public attitude of local communities.

The Public Relations Advisory Committee, made up of state society executive secretaries and PR directors, has been of inestimable value in planning and implementing our program. This committee has made it possible for us to keep informed of your needs and suggestions and to plan our program accordingly. I sincerely hope that you will consider them as your liaison officers and use them accordingly.

The cooperation we have received from our state and county medical societies has been excellent, and I want you to know it is appreciated. You have joined forces with us, and I trust we can continue to pull together.

We have made mistakes during the past year—we will make some during the coming year. There are many things to be done, goals to be achieved, but we are moving ahead and, with your help, will continue to progress.

GRANTS FOR RESEARCH

Individual grants up to $500 are available through the Subcommittee on Grants-in-Aid of the Committee on Research of the Council on Pharmacy and Chemistry. These grants are intended primarily for the purpose of stimulating therapeutic research. The funds may be applied to defray expenses attendant to research, with the exception of salaries and services. Applications may be secured by addressing Dr. E. M. K. Geiling, Chairman, Subcommittee on Grants-in-Aid, Committee on Research, Council on Pharmacy and Chemistry, American Medical Association.

STATE LEGISLATION

Arizona

Bill Introduced.—H. 2, proposes the creation of an Arizona **State Board of Nurse Registration and Nursing Education** for the licensing and regulating of professional and practical nurses.

Colorado

Bills Introduced.—S. 13, to amend the **uniform narcotic act,** proposes the addition of laws regulating the sale of hypnotic drugs. No specific definition of "hypnotic" drugs is contained in the proposal. S. 20, to amend the law relating to **narcotic drugs,** proposes to make it unlawful to sell, dispense, or administer a narcotic drug to persons under the age of twenty-one (21) years.

Delaware

Bill Introduced.—S. 6-x, proposes the creation of a **tuberculosis commission** to have the duty of administering and executing all of the laws of the state relating to the prevention and/or the eradication of tuberculosis.

Kentucky

Bill Introduced.—H. 5, to amend the **narcotic drug act,** proposes the death penalty for person who sells, supplies, or prescribes narcotic drugs to persons under twenty-one (21) years of age in violation of the narcotic drug law.

Massachusetts

Bills Introduced.—H. 17, to amend the law relating to the **practice of chiropody,** proposes to define a chiropodist as one who holds himself out as being able to diagnose, treat, or prescribe for any disease, pain, injury, deficiency, deformity, or other condition of the human foot or who offers or undertakes by any method to diagnose, treat, or prescribe for any disease, pain, injury, deficiency, deformity, or other condition of the human foot or who, except on the written prescription of the registered chiropodist or physician, or by the use of impressions made by a registered chiropodist or physician, directly or indirectly by mail, carrier, personal agent, or by other methods, supplies, constructs, reproduces, repairs, adds, or directs the application of any substance to foot appliances, or places such appliances in the shoe or adjust the same. H. 19, to amend the law relating to the examination of school children's feet, proposes to permit **chiropodists as well as physicians** to make the necessary examination. H. 20, to amend the law regulating the use of bodies of deceased persons and the **promotion of anatomic science,** proposes to permit the use of such bodies by approved schools of chiropody. H. 71, to amend the workmen's compensation act, provides for the appointment of **qualified, impartial physicians** to examine injured employees and to make reports of such examinations. H. 83, to amend the law relating to **examinations of school children,** proposes to prohibit school children from attending public school if they are infected with a disease dangerous to the public health or live in a household where such an infection or exposure exists. H. 84, to amend the **hospital licensing law,** permits the state department of health to temporarily suspend licenses of institutions which are operating in a manner dangerous to the public health and also to issue temporary licenses to institutions which qualify therefor. H. 147, proposes the construction and maintenance of a **school of medicine** on the school campus of the University of Massachusetts in Amherst. H. 169, proposes to repeal certain provisions of law making admissible in evidence, in cases of contract or tort for malpractice, certain statements of fact or opinion contained in published treatises, periodicals, books, and pamphlets. H. 223, proposes that any person who is found to be suffering from **tuberculosis** in a communicable stage shall be detained in an appropriate hospital under the supervision of the department of public health. H. 292, proposes the establishment of a **school of medicine** by the University of Massachusetts. H. 317, proposes the enactment of a **cash sickness compensation law.** H. 354, proposes the establishment within the division of registration of an agency to be known as the **Approval Authority for schools training medical technologists.** This authority would have jurisdiction over standards, inspection, and licensing of medical technology schools or other agencies training physiotherapists, laboratory technicians, and x-ray technicians. H. 520, proposes to require all **persons addicted to narcotics** to register with the medical division of the state department of public health. H. 600, proposes the creation of a **medical school** by the University of Massachusetts in metropolitan Boston. H. 732, proposes the creation of a board of registration of **sanitarians** to license persons desiring to practice in the field of sanity science and technology. H. 739, proposes the enactment of the creation of a board of registration of dispensing opticians for the licensing of such practitioners. H. 741, proposes to authorize the department of public health to make an investigation relating to the availability of doctors for emergency calls in cities and towns of the commonwealth. H. 842, proposed the erection of a **medical school** in the city of Boston to be affiliated with the University of Massachusetts. H. 847, proposes the establishment of a **school of medicine** as a part of the University of Massachusetts. H. 850, proposes the establishment of a **school of medicine** by the University of Massachusetts. H. 916, to amend the motor vehicle act relating to **blood tests** in connection with the trial of persons charged with operating a motor vehicle under the influence of intoxicating liquor, proposes that evidence indicating that there was at the time of the accident 5/100% or less by weight of alcohol in a person's blood shall be prima facie evidence that such person was not under the influence of intoxicating liquor and that evidence that there was at that time from 5/100% to 15/100% by weight of alcohol in his blood shall be relevant evidence but not prima facie evidence indicating whether or not the person was under the influence of intoxicating liquor. H. 1057, proposes the creation of a special commission to make an investigation relative to the sale, furnishing, delivery exchange, and the use of **narcotic drugs** within the commonwealth. H. 1058, to amend the law relating to **nacotic drugs,** proposes to eliminate the words "a person under the age of twenty-one (21) years" in the penalty section so that the penalties will apply to any person. H. 1059, to amend the law relating to **physical therapy,** proposes to permit the licensing of persons without examination if they were engaged in the active practice of physical therapy in a competent manner for three (3) years immediately preceding Nov. 30, 1951. H. 1061, proposes to direct the commission on alcoholism to make a continuous study of methods for treating **narcotic users** and other factors relating to the problem of narcotics. H. 1248, proposes the creation of a **lien** on accident and liability insurance policies **in favor of hospitals** treating persons insured thereunder. H. 1258, proposes the enactment of a law establishing a system of **compulsory nonindustrial accident and health insurance benefits.** H. 1268, proposes to require that **copies of medical records,** reports of hospitals, clinics, and physicians be furnished to the employee or his attorney. H. 1293, proposes regulations applicable to persons engaged in **animal experimentation.** Licenses would be issued by the commission of public safety but only after the board of registration in medicine had filed a certificate to the effect that the applicant is of such reliability or training or education as to reasonably qualify him to take part in such experiments and that they will be performed only in places or institutions possessing adequate and humane facilities. H. 1294, proposes to require every person who purchases or acquires a dog, cat or bird for purposes of **animal experimentation** to keep a record thereof and submit it to the commissioner of public safety. H. 1393, proposes the creation of a **hospital recreation commission** to foster, stimulate, and promote community and organization interest in volunteer recreation and entertainment programs in the hospitals of the Commonwealth. H. 1401, proposes the creation in the department of industrial accidents of a council on industrial health and safety. H. 1513, proposes the enactment of a **nonoccupational diability benefits law.** H. 1615, proposes that **nonprofit service corporations** be declared to be charitable corporations. H. 1682, proposes to memorialize the Congress of the United States to pass legislation extending the provisions of **the social security act** so as to include provisions for workmen's compensation, cash sickness, and retirement benefits. H. 1764, proposes that any employer who maintains a clinic, dispensary, or hospital for the treatment of injured employees shall furnish such employee or his attorney with copies of **reports of all medical examinations** of the employee while at such clinic, dispensary, or hospital. S. 135, proposes that **motor vehicle number plates** assigned to members of the medical profession should bear thereon in addition to the numerals the letters "M.D." S. 197, proposes the enactment of a **cash sickness compensation law.** S. 198, to amend the workmen's compensation act, proposes that the record of the **history, examination, diagnosis, or treatment** of an employee shall not be furnished to any employer or to his or her agents by any doctor, physician, surgeon, nurse, or other person who shall examine, treat, or attend an employee, **unless the employee consents** thereto in writing. S. 199, proposes the enactment of a **diability benefits law.** S. 203, proposes the enactment of a **cash sickness compensation law.** S. 345, proposes to direct the department of public health to establish an **alcohol clinic** in the city of Pittsfield. S. 346, proposes the creation of a special commission to make a study of the **cancer** problem in the state. S. 347, proposes the creation of a **board of registration of chiropractors** and defines chiropractic as the science of locating and removing, by hand adjustment only, interference with the transmission or expression of nerve force in the human body, by the correction of misalignment of subluxations of vertebral column. The practice of chiropractic would exclude operative surgery, except that the x-ray and analytical instruments may be used solely for the purposes of examination. S. 348, to amend the medical practice act, would prohibit the **graduates of medical schools located outside of the United States** or its territorial limits from taking an examination for a license. S. 409, proposes the enactment of a licensing law for the regulating of **nursing homes.**

Rhode Island

Bills Introduced.—H. 548, proposes that no **settlement or general release** signed by any person confined in a hospital or sanitarium as a patient with reference to any personal injuries sustained by such person shall be admissible in evidence, used or referred to in any manner at the trial of any action **to recover damages for personal injuries** or consequential damages resulting therefrom, which statement, settlement or general release was obtained within 15 days after the injuries were sustained and such settlement and release shall be null and void unless at least five (5) days prior to the obtaining or procuring of it the injured person has signified in writing his willingness that the release be given. H. 572, proposes that a statement of fact or opinion on a subject of science or art contained in a published treatise, periodical, book, or pamphlet shall, in the discretion of the court, and if the court finds that the statement is relevant and that the writer is recognized in his profession as an expert, be admissible in actions of contract or tort for **malpractice, error or mistake against a physician,** surgeon, dentist, optometrist, hospital and sanitariums as evidence tending to prove said fact. The proposal would also require however, that notice of the intention of using such statement shall be given to the adverse party at least three (3) days before the trial.

South Carolina

Bill introduced.—H. 1662, proposes the enactment of a **uniform narcotic drug act.**

Prepared by the Bureau of Legal Medicine and Legislation.

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MEDICAL NEWS

CALIFORNIA

Railroad Blood Donor Car.—A specially equipped railroad blood donor car, named "The Life Line," was dedicated in San Francisco in November at a ceremony sponsored by the Southern Pacific, which built and will operate the car over its lines, and by the Irwin Memorial Blood Bank of the San Francisco Medical Society, which will staff the car and supervise the extensive blood procurement project. A. T. Mercier, president of the railroad, dedicated the car at the conclusion of a morning program. The principal address was given by Dr. John W. Cline, San Francisco, President of the American Medical Association. Keys to the car and passes with which the staff can travel on Southern Pacific lines to and from duty aboard the blood donor car were presented by Mr. Mercier to Dr. Paul M. Aggeler, president of the Blood Bank Commission. First major collection of blood on "The Life Line" started at Sacramento in December. From there the car moved to other parts of California and will go through Nevada, Utah, Oregon, Arizona, New Mexico, and into Texas, reaching persons in isolated areas who have not had an opportunity to donate blood. This train has been put in operation to enable civilian and military residents in rural communities to give blood for their friends and to establish "blood insurance" for themselves and their families, to collect blood for the military in Korea, and to build a plasma reserve for the armed forces. When the car is operating within the territorial boundaries of the twelve community blood banks in the California Blood Bank System, the Red Cross, or community blood banks in other states, the society's blood bank will coordinate the blood program with these banks.

COLORADO

Midwinter Postgraduate Clinics.—These clinics are being sponsored by the Colorado State Medical Society and will be held February 12-15 with headquarters at the Shirley-Savoy Hotel in Denver. Papers will be read in addition to the cases that are to be presented in various clinics. Luncheon and roundtable discussions will be held at the hotel. Guest speakers include Drs. Preston T. Brown, Phoenix, Ariz.; Herbert Conway, New York; Francis D. Murphy, Milwaukee; Henry K. Ransom, Ann Arbor, Mich.; Robert D. Taylor, Cleveland; Robert Wartenberg, San Francisco, and William Barry Wood Jr., St. Louis. The registration fee is $5.

CONNECTICUT

County Society Appoints Executive Secretary.—Joseph L. Gordon has been appointed executive secretary of the Hartford County Medical Association. He was formerly advertising and business manager for the *Brookline (Mass.) Chronicle*, and has been a staff writer for United Press. The appointment furthers action taken at the association's last annual meeting, when it voted to develop a long-range administrative and public relations program.

ILLINOIS

Conference on the Common Cold.—The common cold will be discussed at an area luncheon and afternoon meeting, sponsored by the Common Cold Foundation, to be held at the Palmer House, Chicago, February 13. The guest speaker at the luncheon will be Dr. Thomas G. Ward, associate professor of bacteriology, Johns Hopkins University, Baltimore, who will point out areas in which research would be most effective. Executive and medical directors of industrial plants are being invited to attend the conference. In the afternoon at a panel discussion, Dr. Edward C. Holmblad, managing director, Industrial Medical Association, Chicago, will serve as moderator. The speakers will be Drs. Andrew L. Banyai, Milwaukee; Noah D. Fabricant, Clayton G. Loosli, Arthur K. Peterson, and Leon Unger, all of Chicago, and Dr. Ward. Dr. William A. Sawyer, Rochester, N. Y., medical consultant for the Eastman Kodak Company, is president of the Common Cold Foundation and Dr. Charles M. Hendricks, Chicago, is executive director.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

Chicago

University Appointment.—Dr. William Saphir has been appointed clinical assistant professor of medicine at the University of Illinois. A graduate of the Medical School of the University of Vienna, Dr. Saphir is a member of the attending staffs at Cook County, Michael Reese, and Chicago Memorial hospitals.

West Side Medical Center.—Dr. Walter H. Theobald was reelected president of the West Side Medical Center Commission December 18. Others elected were Dr. Karl Meyer, vice-president, C. Hilding Anderson, secretary, and Carl Stockholm, treasurer. These three replace officers whose terms expired last July. New members appointed by Governor Stevenson at that time are Dr. Andrew C. Ivy, Homer J. Livingston, and Stephen A. Mitchell. The commission approved its proposed budget for 1952, which includes $375,000 for land acquisitions. This amount is one-half of the legislative appropriation for the next two years.

LOUISIANA

Society News.—Dr. James D. Rives, New Orleans, was elected president of the Surgical Association of Louisiana at the annual meeting in New Orleans November 11. Other officers reelected include Dr. Henry G. Butker, secretary, and Dr. Edmund L. Leckert, treasurer.

Course in Legal Medicine.—An intensive short course in legal medicine and elements of medicolegal litigation will be conducted for trial lawyers February 27-March 4 at the Jung Hotel in New Orleans by the law-science program of Tulane University. It is designed for practicing attorneys who handle civil litigation involving personal injuries and disabilities. Dr. Hubert Winston Smith, professor of law and legal medicine, will direct the course. It will deal with basic knowledge of body structure and function; identification, causes and effects of various types of physical and mental injuries, and the conduct of legal cases involving such injuries. Outstanding medical specialists, legal scholars, and trial lawyers from various parts of the country will conduct the course. In addition, an advanced course will be conducted simultaneously for practicing attorneys who attended last year's program. Tulane's law-science program was established in 1949 for the study, promotion, and improvement of legal medicine and the scientific application of medical knowledge in the solution of problems. Dr. Smith holds degrees in both medicine and law from Harvard University and professorships in both the college of law and the school of medicine at Tulane.

MICHIGAN

Society News.—The annual meeting of the Michigan Pathological Society was held at the University Hospital in Ann Arbor December 8. The program consisted of a slide seminar on diagnostic problems. Dr. Walter A. Stryker of Wyandotte was elected president, and Dr. James G. Christopher of Detroit, president-elect. Dr. C. Allen Payne of Grand Rapids was reelected secretary-treasurer. The next meeting was scheduled for February 9 at Henry Ford Hospital, Detroit, the program to be devoted to clinical pathology.

NEBRASKA

University Apointment.—Dr. Willson B. Moody, associate professor of medicine, has been appointed chairman of the department of medicine at the University of Nebraska College of Medicine, Omaha, succeeding Dr. Harold C. Lueth, dean of the medical college, who resigned this chairmanship because of the press of duties as dean.

NEW YORK

Postgraduate Instruction.—Dr. Charles T. Dotter, New York, will address the Ulster County Medical Society February 5 at 9 p. m. in the Governor Clinton Hotel in Kingston on "Angiocardiography." The Onondaga County Medical Society on February 5 at 8:30 p. m. in the University Club in Syracuse will hear Dr. Fred J. Hodges, Ann Arbor, Mich., speak on "Recent Advances in X-Ray Diagnosis." On February 7 the Unity Hospital staff will meet at the hospital in Brooklyn at 10:30 a. m. to hear a lecture by Dr. George P. Heckel of Rochester on "Practical Application of Endocrinology in Gynecology." Dr. George E. Anderson, New York, will speak on "Diabetes Mellitus—Its Modern Interpretation and Treatment" at a meeting of the Montgomery County Medical Society at the Elks Club in Amsterdam February 12 at 6 p. m. Following a dinner at 8:30 Dr. William P. Given, New York, will address the group on "Practical Application of Endocrinology in Gynecology." These lectures are provided by the Medical Society of the State of New York in cooperation with the New York State Department of Health.

New York City

Ward Teaching Programs.—City Hospital, Welfare Island, announces a practical ward teaching program under the direction of Dr. Carl Reich, visiting physician first medicine. The course will extend from February 1 to May 1 and is free to members of the medical profession.

Exhibit of Lavoisier Memorabilia.—An exhibition of printed works by and memorabilia of the French chemist, Antoine-Laurent Lavoisier (1743-1794), will be held at The Grolier Club, 47 E. 60th St., February 19 through March 30. Lavoisier's name is associated with the overthrow of the phlogistic doctrine that dominated the development of chemistry for over a century and with the establishment of the foundation of modern science.

Lectures on Medicinal Chemistry.—The current status of medicinal chemistry is the subject of a 10-week lecture series to be sponsored by the New York Section of the American Chemical Society. Ten speakers, each a specialist in his field, will present the lectures on Wednesday evenings at 7 p. m. starting February 13 in the auditorium of the Central Commercial High School, 214 East 42nd St. Cost of the series to society members will be $10; to non-members, $20. Applications should be forwarded to Edward S. Todaro, Eimer & Amend, 633 Greenwich St., New York. Topics and speakers are as follows:

February 13, Alfred Burger, Ph.D., Charlottesville, Va., Chemical Structure and Biological Activity.
February 20, Arnold D. Welch, Cleveland, Water-Soluble Vitamins Concerned with One- and Two-Carbon Intermediates.
February 27, Bernard D. Davis, Washington, D. C., Metabolic Aspects of Chemotherapeutic Action and Drug Resistance.
March 5, Dr. Murray J. Shear, Ph.D., Bethesda, Md., Growth and Its Chemical Inhibition.
March 12, Jackson P. English, Ph.D., Stamford, Conn., Chemotherapy of Tuberculosis.
March 19, Karl P. Link, Ph.D., Madison, Wis., Anticoagulants.
April 2, Otto Krayer, The Cardiovascular System and Drugs Acting on It.
April 16, Gregory G. Pincus, Sc.D., Worcester, Mass., Chemical and Biological Transformation of Steroids.
April 30, Klaus R. Unna, Chicago, Drugs Acting on the Neuromuscular System.

NORTH DAKOTA

Society News.—New officers of the North Dakota Society of Obstetrics and Gynecology include Dr. Robert B. Woodhull, Minot, president, and Dr. John S. Gillam, Fargo, secretary-treasurer. The next meeting will be held May 13 in Fargo.

PENNSYLVANIA

New Offices in Health Department.—Three new offices in the Pennsylvania Department of Health were announced recently by Secretary of Health Dr. Russell E. Teague. The new Office of Professional Training will be directed by Karl M. Mason, who comes from Pittsburgh, where he was director of the Pittsburgh Field Training Center, which trains public health personnel. The Office of Statistics and Records, to be directed by Albert E. Bailey, Ph.D., will be composed of three units: the Bureau of Vital Statistics, directed by George E. Greenwood; the Statistics Processing Section, with Thomas Gardner in charge, and a Statistical Analysis Section, yet to be developed. Dr. Bailey comes from the National Office of Vital Statistics, U. S. Public Health Service, Washington, D. C., where he was assistant to the chief of the office. Dr. Clarence D. Barrett will be the new medical training officer for the Department of Health and has been assigned as director of the local public health "pilot" unit established in Butler County. He served as a public health administrator in several counties in Ohio and Michigan, and for seven years was chief of the Bureau of Communicable Disease Control of the Michigan State Department of Health. He also served as director of Ingham County and Michigan Training Center.

Philadelphia

Honor Hospital Staff President.—Dr. John W. Bransfield, president and chief of the surgical department of Doctors Hospital, was honored January 17 at the annual staff banquet. Dr. Bransfield, who is also professor of oral surgery at the Graduate School of Medicine of the University of Pennsylvania and co-developer of the Dorrance-Bransfield operation for cleft palate, received the hospital's symbolic gavel, as he began his second year as president of the hospital. A second feature of the evening was a talk on the use of color television in medical education by Joseph N. DuBarry, assistant to the president of Smith, Kline & French Laboratories. Mr. DuBarry has been instrumental in the development of the medical application of color television over the past two and a half years.

Pittsburgh

Course in Slit-Lamp Microscopy.—A course in the practical application of the slit-lamp microscope and newer methods in gonioscopy will be given by the department of ophthalmology of Montefiore Hospital February 25-29. The course, limited to 35 physicians, will be under the direction of Dr. Harvey E. Thorpe. It will include management of intraocular foreign bodies, glaucoma surgery, and the use of corticotropin (ACTH) and cortisone in ophthalmology. The fee is $100. Information may be obtained from the Secretary, Committee on Graduate Education, Allegheny County Medical Society, 225 Jenkins Bldg., Pittsburgh 22.

TENNESSEE

Courses in Electrocardiography.—The Memphis Heart Association is sponsoring a series of practical electrocardiography sessions at the Institute of Pathology in Memphis, Room 107, every other Monday at 7:30 p. m. that began January 21. All physicians, residents, interns, and medical students of Memphis and the nearby area are invited. Tuition for physicians is $20 for the entire year; no tuition will be charged residents, interns, and medical students. This course is a cooperative venture of the resident staffs of the Baptist Memorial, St. Joseph, Methodist, and Veterans Administration (Kennedy) hospitals. If attendance warrants, there will be out-of-town guest speakers.

New Postgraduate Medicine Department.—The University of Tennessee Medical Units, Memphis, has just established a department of postgraduate medicine, under the direction of L. W. Kibler, for 15 years field director for the postgraduate medical education program of the Tennessee State Medical Association. The association's training program will be continued by George Cummings, former assistant alumni secretary of the University of Oklahoma at Norman. Efforts will be made by the university to determine what the professions want in postgraduate training to improve medical service in the broadest sense. In addition to courses for physicians, dentists, pharmacists, and nurses, training will be offered to x-ray technicians, medical technologists, and other auxiliary medical personnel. It will offer intensive courses of three days' to two weeks' duration to all practitioners. First attention will be given to the needs of physicians in general practice, but programs for specialists and members of related health fields will be included as the need warrants.

VERMONT

Community Health Fair.—The first community Health Fair in New England was held in Chester December 1-2 under the joint sponsorship of the Windsor County Home Demonstration Groups and the newly organized Ellsworth Medical Group. The

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fair received support from the Vermont Cancer Society, Vermont Heart Association, Vermont Tuberculosis Association, the poliomyelitis foundation, and many others. Exhibits were set up in the high school gymnasium, and movies on a variety of health subjects were shown. Free urine examinations (and blood sugar determinations when indicated) and free chest x-rays were made at the Ellsworth Clinic. The evening programs in the gymnasium consisted of talks by prominent speakers on cancer, diabetes, heart disease, poliomyelitis, and the American Red Cross Blood Bank Program.

WEST VIRGINIA

Society News.—Dr. Claude R. Davisson of Weston was elected president of the Central West Virginia Medical Society at the regular dinner meeting held at Buckhannon November 15. Dr. James R. Glasscock of Richwood was named vice-president, and Dr. Theresa O. Snaith of Weston was reelected secretary-treasurer.

Heart Association Drive for Funds.—The West Virginia Heart Association is sponsoring its third annual drive for funds. The slogan for the campaign is "New Hope for Hearts." The quota for this year's drive is fixed at $70,000. The total collected in 1951 was $33,000. Four heart diagnostic clinics for the medically indigent are being operated in West Virginia at Wheeling, where there are two, and in Huntington and Charleston. It is planned to have qualified speakers appear in every county in the state. These meetings will be arranged through secretaries of the county groups. Clinical sessions will be provided when requested, and all component medical societies of the state medical association will be urged to devote at least one meeting a year to presentation of papers on diseases of the heart. The association has pamphlets and motion picture films available for use over the state. Copies of the list will be sent to all interested doctors. Dr. Howard R. Sauder of Wheeling is president of the West Virginia Heart Association, and Dr. William E. Bray of Huntington is secretary. Offices are located at 1206 Kanawha Blvd. in Charleston.

GENERAL

International College of Surgeons Regional Meetings.—Dr. Henry W. Meyerding of Rochester, Minn., president, United States Chapter, International College of Surgeons, announces six regional meetings to be held in 1952 as follows:

Birmingham, Ala., Tutwiler Hotel, February 15-16, Paul W. Shannon, chairman.
Pittsburgh, William Penn Hotel, March 13-14, Elmer S. A. King, chairman.
Tulsa, Okla., Mayo Hotel, March 28, Andre B. Carney, chairman.
Detroit, Hotel Statler, April 24-25, Warren W. Babcock, chairman.
Kansas City, Mo., President Hotel, April 27-29, Claude J. Hunt, chairman.
Colorado Springs, Colo., Broadmoor Hotel, May 2-3, Kenneth C. Sawyer, Denver, chairman.

Surgical papers will be presented and panel discussions led by outstanding speakers at each of the regional meetings.

National Cancer Conference.—This conference will be held at the Netherland Plaza Hotel in Cincinnati March 3-5 under the sponsorship of the American Cancer Society, the National Cancer Institute, and the American Association for Cancer Research. The general sessions speakers are as follows:

Richard H. Overholt, Boston, Virus Pneumonia, Tuberculosis, Cancer—That is the Problem.
Alexander Haddow, London, Experimental Induction of Prostatic and Bladder Neoplasms.
Alfred A. Gellhorn, New York, Clinical Evaluation of Chemotherapy in Neoplastic Diseases.
Richard H. Chamberlain, Philadelphia, Radiation in Cancer Therapy.
George N. Papanicolaou, New York, Present Status and Probable Future of Exfoliative Cytology.
George T. Pack, New York, End Results in Treatment of Melanoma.
Eugene P. Pendergrass, Philadelphia, Cancer Potential of the Silent Lung Shadow.
Alexander Lipschutz, Santiago, Chile, Tumorigenic and Anti-Tumorigenic Properties of Steroids.
Owen H. Wangensteen, Minneapolis, Surgery of Alimentary Tract Cancer.

Clinical papers will be presented as well as panel discussions on cancer of the breast, genitourinary tract, the head and neck, female genital tract, gastrointestinal tract, and the lung, and lymphoma and leukemia. Research panels will discuss radiobiology, genetics, cytology, chemotherapy, isotopes, virology, and steroid endocrinology in relation to cancer. The meeting is open to all physicians.

Poliomyelitis Foundation Grants.—The National Foundation for Infantile Paralysis has announced that research and teaching institutions throughout the United States and Canada have just been awarded March of Dimes funds for poliomyelitis studies and professional education. Twenty-three medical schools, hospitals, and research institutions in this country and one in Canada will receive $1,775,393. This sum brings to about $29 million the amount provided since 1938 by the March of Dimes for furthering research and for training professional personnel. In addition, the foundation has spent more than $120 million for patient care during those years. These awards are administered at the national foundation headquarters and are made on the recommendation of committees from each of the professions concerned. The board of trustees approved about $300,000 for paying "a justifiable portion of the indirect costs of research that are not reflected in the usual budget of a research project." These costs include heat, power and light, building maintenance, and other similar operating charges.

Surgeons Sectional Meetings.—The American College of Surgeons will hold a section meeting at the Chalfonte-Haddon Hall, Atlantic City, N. J., February 11-12. The program includes panel discussions on Breast Tumors, with Dr. Frank E. Adair, New York, as moderator; Surgery on Diabetic Patients, with Dr. William F. MacFee, New York, as moderator; Hysterectomy: Total, Subtotal, or Vaginal, with Dr. Lewis C. Scheffey, Philadelphia, as moderator, and Bleeding from the Gastrointestinal Tract, with Dr. Champ Lyons, Birmingham, Ala., as moderator. Symposiums will be presented on trauma and cancer. A special program for ophthalmologists and otorhinolaryngologists will be given on February 12.

Another section meeting is scheduled to be held at the Chateau Frontenac in Quebec City, in recognition of the centenary celebration of Laval University. The program includes the following panel discussions:

Diagnosis and Treatment of Breast Tumors, Robert M. Janes, Toronto, moderator.
Intestinal Obstruction, Roswell K. Brown, Buffalo, moderator.
Emergencies Arising During Operation, Samuel F. Marshall, Boston, moderator.
Bleeding from the Gastrointestinal Tract, John D. Stewart, Buffalo, moderator.

There will also be symposiums on trauma and cancer. Dr. Paul R. Hawley, Chicago, director, American College of Surgeons, will address each section at dinner meetings.

Heart Association Awards for Research.—Thirty-seven established investigatorships and research fellowships totaling $185,650 were recently awarded by the American Heart Association for the development of new and improved methods of treatment, care, and prevention of heart disease. The awards are the first of this year's allocations from contributions made by the public to the 1951 heart fund and provide for studies to be conducted during the fiscal year beginning next July. Within the next few months additional awards in the form of grants-in-aid to institutions will be announced by the association to round out the fourth successive year of its national research support program in the cardiovascular field. Apart from this national program, affiliates of the American Heart Association throughout the country make research awards in their areas. Last year the total amount spent on research by the American Heart Association and its affiliated heart associations throughout the nation was more than $1,000,000. The 1952 heart fund drive, to be conducted throughout February, will make available substantial new funds to carry forward this research program.

The research scientists who will receive awards are engaged in a wide range of investigations. The latest research awards of the American Heart Association provide for continuation of 9 established investigator fellowships, 5 new established investigator fellowships, 11 research fellowship renewals, and 12 new research fellowships.

MEETINGS

AMERICAN ACADEMY OF ALLERGY, Hotel Sherman, Chicago, Feb. 18-20. Dr. Ben Z. Rappaport, 208 East Wisconsin Ave., Milwaukee 2, Secretary.

AMERICAN ACADEMY OF FORENSIC SCIENCES, Biltmore Hotel, Atlanta, Ga., March 6-8. Prof. Ralph F. Turner, Michigan State College Dept. of Police Administration, East Lansing, Mich., Secretary.

AMERICAN ACADEMY OF GENERAL PRACTICE, Atlantic City, N. J., March 24-27. Mr. Mac F. Cahal, 406 West 34th St., Kansas City 2, Mo., Executive Secretary.

AMERICAN ASSOCIATION OF ANATOMISTS, Providence, R. I., March 19-21. Dr. Normand L. Hoerr. 2109 Adelbert Road, Cleveland 6, Secretary.

AMERICAN COLLEGE OF RADIOLOGY, Palmer House, Chicago, Feb. 8. Mr. William E. Stronach, 20 N. Wacker Drive, Chicago 6, Executive Secretary.

AMERICAN PSYCHOSOMATIC SOCIETY, Chicago, March 29-30. Dr. Sydney G. Margolin, 714 Madison Ave., New York 21, New York, Secretary.

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE, Palmer House, Chicago, Feb. 11-12. Dr. Donald G. Anderson, 535 N. Dearborn St., Chicago 10, Secretary.

CENTRAL SURGICAL ASSOCIATION, Toronto, Can., March 6-8. Dr. James T. Priestley, 102 Second Avenue S.W., Rochester, Minn., Secretary.

CHICAGO MEDICAL SOCIETY ANNUAL CLINICAL CONFERENCE, Palmer House, Chicago, March 4-7. Dr. Walter C. Bornemeier, 86 East Randolph St., Chicago 1, Secretary.

MICHIGAN CLINICAL INSTITUTE, Book-Cadillac Hotel, Detroit, March 12-14. Dr. H. G. Cummings, 606 Townsend St., Lansing 15, Chairman.

NATIONAL CONFERENCE ON MEDICAL SERVICE, Palmer House, Chicago, Feb. 10. Dr. Harlan A. English, 139 North Vermilion St., Danville, Ill., Secretary.

NATIONAL CONFERENCE ON RURAL HEALTH, Shirley-Savoy Hotel, Denver, Feb. 28-Mar. 1. Dr. F. S. Crockett, 535 North Dearborn St., Chicago 10, Chairman.

NEW ORLEANS GRADUATE MEDICAL ASSEMBLY, Municipal Auditorium, New Orleans, March 10-13. Dr. Woodward D. Beacham, 1430 Tulane Ave., Room 105, New Orleans 12, Secretary.

NORTH PACIFIC SOCIETY OF INTERNAL MEDICINE, Portland, Ore., March 22. Dr. R. L. King, 1115 Terry Ave., Seattle 1, Secretary.

SECTIONAL MEETINGS, AMERICAN COLLEGE OF SURGEONS:
Dallas, Texas, Hotel Adolphus, Feb. 4-6. Dr. John V. Goode, 2618 Oak Lawn Ave., Dallas 4, Chairman.
Atlantic City, N. J., Chalfonte-Haddon Hall, Feb. 11-12. Dr. David B. Allman, 104 St. Charles Place, Atlantic City, Chairman.
Quebec, Can., Chateau Frontenac, Feb. 18-19. Dr. Paul A. Poliquin, 71 St. Ann St., Quebec, Can., Chairman.
Minneapolis, Radisson Hotel, March 24-26. Dr. Harvey Nelson, 78 South 9th St., Minneapolis 2, Chairman.

SOUTHEASTERN ALLERGY ASSOCIATION, Augusta, Ga., March 21-22. Dr. Katharine B. MacInnis, 1515 Bull St., Columbia 49, S. C., Secretary.

SOUTHEASTERN SURGICAL CONGRESS, Atlanta, Ga., March 10-13. Dr. Benjamin J. Beasley, 701 Hurt Bldg., Atlanta 3, Ga., Secretary.

SOUTHWEST ALLERGY FORUM, Hotel Baker, Dallas, Texas, March 2-4 Dr. James Holman, Medical Arts Bldg., Dallas, Secretary.

TRI-STATES MEDICAL ASSOCIATION OF THE CAROLINAS AND VIRGINIA, Roanoke, Va., Feb. 18-19. Dr. James N. Northington, 306 North Tryon St., Charlotte 2, N. C., Secretary.

INTERNATIONAL

AUSTRALASIAN MEDICAL CONGRESS, Melbourne Victoria, Australia, Aug. 22-30. Dr. C. H. Dickson, Medical Society Hall, 426 Albert St., East Melbourne, Victoria, Australia, Hon. General Secretary.

COMMONWEALTH AND EMPIRE HEALTH AND TUBERCULOSIS CONFERENCE, Central Hall, London, England, July 8-13. Dr. J. H. Harley Williams, Tavistock House North, Tavistock Sq., London, W.C.1, England, Secretary General.

CONGRESS OF THE INTERNATIONAL DIABETES FEDERATION, Leyden, Netherlands, July 7-12. Dr. F. Gerritzen, 33, Prinsegracht, The Hague, Netherlands, Secretary.

EUROPEAN SOCIETY OF CARDIOVASCULAR SURGERY, Strasbourg, France, Oct. 3-4. Sir James Learmonth, Department of Surgery, University New Buildings, Edinburgh 8, Scotland.

INTERAMERICAN CARDIOLOGICAL CONGRESS, Buenos Aires, Argentina, Aug. 31-Sept. 7. Dr. Blas Moia, Larrea 1132, Buenos Aires, Argentina, Secretary-General.

INTER-AMERICAN CONGRESS OF RADIOLOGY, Mexico City, Mexico, Nov. 2-6. Dr. Guido Torres Martinez, Marsella No. 11, Mexico, D.F., Secretary-General.

INTERNATIONAL COLLEGE OF SURGEONS, Madrid, Spain, May 20-24. Dr. Max Thorek, 850 West Irving Park Road, Chicago, Ill., U. S. A., Secretary-General.

INTERNATIONAL CONGRESS OF HAEMATOLOGY, Mar del Plata, Argentina, Sept. 21-26. Dr. Carlos Reussi, Anchorena 1710, Buenos Aires, Argentina, Secretary.

INTERNATIONAL CONGRESS OF INTERNAL MEDICINE, Friends House, London, N.W.1, Eng. Sept. 15-18. Sir Harold Boldero, 12 Pall Mall East, London, S.W.1, England, Secretary.

INTERNATIONAL CONGRESS ON NEUROPATHOLOGY, Rome, Italy, Sept. 8-13. Dr. Armando Ferraro, 722 W. 168th St., New York, N. Y., U. S. A., Secretary General.

INTERNATIONAL CONGRESS OF PHYSICAL MEDICINE, London, England, July 14-19. Dr. A. C. Boyle, 45, Lincoln's Inn Fields, London, W.C.2, England. Hon. Secretary.

INTERNATIONAL UNION AGAINST TUBERCULOSIS, Rio de Janeiro, Brazil, Aug. 24-27. Prof. Etienne Bernard, 66 Blvd. St. Michel, Paris 6e, France, Secretary-General.

LATIN AMERICAN CONGRESS OF PHYSICAL MEDICINE, Panama City, R. P., Feb. 24-29. Dr. Cassius Lopez de Victoria, 176 East 71st St., New York, N. Y., U. S. A., Executive Director.

NEURORADIOLOGIC SYMPOSIUM, Stockholm, Sweden, Sept. 17-20. Docent Ake Lindbom, Symposium Neuroradiologicum, Serafimerlasarettet, Stockholm K., Sweden, Secretary.

PAN-AMERICAN CONGRESS OF GASTROENTEROLOGY, Mexico City, D.F., May 11-17. Dr. R. Flores-Lopez, Calle Dr. Balmis, No. 148, Mexico City, D.F., Secretary.

PAN-EUROPEAN CONGRESS OF GASTROENTEROLOGY, Bologna, Florence and Rome, Italy, April 20-26. Prof. Guido Bassi, Policlinic of St. Orsola, Bologna, Italy, Secretary.

UNITED STATES-MEXICO BORDER PUBLIC HEALTH ASSOCIATION, Monterrey, Nuevo Leon, Mexico, March 17-19. Dr. J. C. Ellington, 314 U. S. Court House, El Paso, Texas, Secretary.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Part II*, April 21-22; *Parts I and II*, June 16-18 or June 23-25; *Part I*, September. All centers where there are five or more candidates. Exec. Sec., Dr. John P. Hubbard, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: Various Locations, July 18. Final date for filing application was Jan. 18. Sec., Dr. C. B. Hickcox, 80 Seymour St., Hartford 15.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written.* Various centers, March 1952. *Oral.* Chicago, May 1952. Final date for filing application was Feb. 1, 1952. Candidates for these tests must have completed three years of approved training prior to July 1, 1952. Sec., Dr. George M. Lewis, 66 E. 66th St., New York 21.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written.* Various centers and overseas, Oct. 20. Closing date for the acceptance of applications for the written examination will be May 1. *Oral.* New Orleans, Feb. 14-16; Cleveland, April 17-19; Chicago, June 5-7, San Francisco, September or October; New York City, November or December. Exec. Sec.-Treas., Dr. William A. Werrell, 1 West Main Street, Madison 3.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* Chicago, May 1952. Final date for filing applications for the May 1952 examination was Jan. 1. Sec., Dr. W. J. German, 789 Howard Ave., New Haven 4, Conn.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Oral.* Chicago, June 9-13, 1952. Final date for filing application was Feb. 1, 1952. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

AMERICAN BOARD OF OPHTHALMOLOGY: *Written.* Twenty-five centers, Feb. 4-5, 1952. *Practical.* Philadelphia, May 29-June 3; Chicago, Oct. 6-10 and New York City, June 6-10, 1953. Sec., Dr. Edwin B. Dumphy, 56 Ivie Road, Cape Cottage, Maine.

AMERICAN BOARD OF OTOLARYNGOLOGY. Toronto, May 13-17; Chicago, Oct. 6-10. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City.

AMERICAN BOARD OF PEDIATRICS: Written examination under local monitors, Jan. 11. This is the only written examination which will be given during 1952. *Oral.* New York City, Feb. 1-3; St. Louis, Mo., Mar. 21-23; Washington, D. C., May 3-5; San Francisco, late June; Chicago, October and Boston, late November. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION: *Parts I and II.* Chicago. June 8 and 9. Sec., Dr. Robert L. Bennett, Georgia Warm Springs Foundation, Warm Springs, Ga.

AMERICAN BOARD OF PREVENTIVE MEDICINE AND PUBLIC HEALTH. *Written.* Berkeley, Calif., Minneapolis, New Orleans and Baltimore. April 18. Sec., Dr. Ernest L. Stebbins, 615 N. Wolfe St., Baltimore.

AMERICAN BOARD OF PROCTOLOGY. *Part I.* Kansas City, Minneapolis, Philadelphia and San Francisco. May 3. Examination includes both oral and written examinations in the basic sciences. *Dates and places tentative.* Sec., Dr. Louis A. Buie, 102-110 2d Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: Chicago, June 13-14. Final date for filing applications is March 15. New York City, Dec. 15-16. Final date for filing applications is Sept. 15. Sec.-Treas., Dr. David A. Boyd, Jr., 102-110 Second Ave. S.W., Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY: *Oral.* Spring 1952. Final date for filing application was Dec. 31. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written.* Various Centers. March 1952. Final date for filing application was Dec. 1, 1951. The following written examination will be given in October 1952. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: Chicago, Feb. 9-13, 1952. Final date for filing applications was Sept. 1. Sec., Dr. Harry Culver, 30 Westwood Rd., Minneapolis 16.

BOARD OF THORACIC SURGERY: Various parts of the country. *Written.* Feb. 29, 1952. Final date for filing application is Jan. 15. Sec., Dr. William M. Tuttle, 1151 Taylor Ave., Detroit 2.

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DEATHS

Mallory, Tracy Burr ⊕ Boston; born in Boston, Oct. 26, 1896; Harvard Medical School, Boston, 1921; professor of pathology at his alma mater and the Harvard Medical School, Courses for Graduates; at one time professor of pathology and bacteriology at Tufts College Medical School; specialist certified by the American Board of Pathology; member and in 1949 vice-president of the American Association of Pathologists and Bacteriologists; since 1947 member of the board of governors and secretary-treasurer of the College of American Pathologists; past president of the New England Pathological Society and of the International Association of Medical Museums; member of the American Society of Clinical Pathologists and the American Society for Experimental Pathology; a lieutenant colonel in the medical corps, Army of the United States, during World War II; chief, department of pathology and bacteriology at the Massachusetts General Hospital from 1926 to September, 1951, when he became consultant to the department of pathology; assistant editor of the *American Journal of Pathology* from 1940 to 1943; consulting Editor of Case Records of the Massachusetts General Hospital in the *New England Journal of Medicine;* died November 11, aged 55, of carcinoma of the lung.

Sager, William Warren ⊕ Richmond, Va.; born in Woodstock, Va., Jan. 8, 1898; George Washington University School of Medicine, Washington, D. C., 1922; member of the Medical Society of the District of Columbia, George Washington University Medical Society, and the Association of Military Surgeons of the United States; fellow of the American College of Surgeons; formerly an associate clinical professor of surgery at his alma mater; during World War II was on active naval duty from 1942 to 1945; among the posts he held were chief of a general surgery section at the Naval Medical Center in Bethesda, Md., and chief of surgery aboard the hospital ship, *U. S. S. Sanctuary;* formerly fellow in surgery at the Mayo Foundation in Rochester, Minn.; in 1948 named a medical adviser to the Selective Service Director of the District of Columbia; for many years practiced in Washington, D. C., where in 1934 he was appointed a member of the Board of Police and Fire Surgeons by the district commissioners, was attending surgeon at Gallinger Memorial Hospital and George Washington University Hospital, and associate surgeon at the Children's Hospital; on the staff of the Veteran Administration Hospital in Richmond; specialist certified by the American Board of Surgery; in 1945 co-winner of the Sir Henry Wellcome Award of the Association of Military Surgeons of the United States for an essay on blast injury; died in the Veterans Administration Hospital recently, aged 53.

Jones, Edgar ⊕ Nashville, Tenn.; born in Readyville, Tenn., Oct. 20, 1903; Vanderbilt University School of Medicine, Nashville, 1929; associate professor of medicine at his alma mater; specialist certified by the American Board of Internal Medicine; at one time on the faculty of the University of Rochester School of Medicine and Dentistry in Rochester, N. Y.; fellow of the American College of Physicians; member of the American Clinical and Climatological Association; died in the office of Vanderbilt University Hospital, where he was a member of the staff, October 27, aged 48, of coronary occlusion.

Evans, Charles E., Tullahoma, Tenn.; Vanderbilt University School of Medicine, Nashville, 1907; city health officer; formerly member of the board of aldermen of Tullahoma; died October 17, aged 79.

Ford, Claude Heard ⊕ Birmingham, Ala.; Emory University School of Medicine, Atlanta, 1927; member of the Southeastern Surgical Congress; fellow of the American College of Surgeons; on the staffs of the Highland General, Baptist, St. Vincent's, and Jefferson-Hillman hospitals; died recently, aged 50, of coronary thrombosis.

Gale, William Sherman, Osborn, Mo.; Barnes Medical College, St. Louis, 1905; member of the American Medical Association; formerly secretary of the DeKalb County Medical Society; served as county coroner, mayor, and president of the school board; vice-president of the Bank of Osborn; died October 28, aged 75, of chronic myocarditis.

Gaynor, Joseph, Los Angeles; Universita Karlova Fakulta Lékarská, Praha, Czechoslovakia, 1920; member of the American Medical Association; died recently, aged 58.

Hamilton, Samuel Green, Tuscaloosa, Ala.; Medical College of Alabama, Mobile, 1902; member of the American Medical Association; died in Druid City Hospital October 11, aged 81, of hypostatic pneumonia following fracture of the hip.

Hudson, Joseph Haskell, Gough, Ga.; Medical College of Georgia, Augusta, 1912; member of the American Medical Association; affiliated with Jefferson Hospital in Louisville; died in University Hospital, Augusta, recently, aged 60, of coronary thrombosis.

Kupersmith, Michael, New York; New York Homeopathic Medical College and Flower Hospital, New York, 1928; died recently, aged 46, of coronary thrombosis.

McLoon, Mary Anne ⊕ St. Louis; University of Minnesota Medical School, Minneapolis, 1923; for many years physician for the board of education of St. Louis; on the staff of Deaconess Hospital; died in St. John's Hospital October 29, aged 63, of cerebral hemorrhage and hypertension.

Martin, John Wesley ⊕ Paris, Ill.; Barnes Medical College, St. Louis, 1907; president of the Edgar County Tuberculosis Society; at one time county coroner; died in Paris Hospital October 27, aged 69, of coronary thrombosis.

Matthews, Reginald Allen, Barberton, Ohio; Western University Faculty of Medicine, London, Canada, 1909; member of the American Medical Association; died in Townsend, Ga., October 7, aged 64, of pulmonary edema, arteriosclerotic heart disease, and diabetes mellitus.

Ockington, James William ⊕ Lakewood, Ohio; St. Louis University School of Medicine, 1930; served overseas during World War II; on the staffs of St. John's Hospital and Lakewood Hospital, where he died October 19, aged 47, of acute myocardial infarction.

Orland, Frank Sydney, Philadelphia; Temple University School of Medicine, Philadelphia, 1922; member of the American Medical Association; died October 25, aged 53, of acute coronary occlusion.

Smith, Charles Mansfield, Portsmouth, Ohio; Vanderbilt University School of Medicine, Nashville, Tenn., 1934; member of the American Medical Association; fellow of the American College of Surgeons; served during World War II; one of the owners of the Smith-Everett Hospital; on the staffs of Mercy and Portsmouth hospitals; died in University Hospital, Columbus, October 11, aged 43, of acute hemorrhagic pancreatitis.

Sullivan, Robert Emmet, Louisville, Ky.; Kentucky School of Medicine, Louisville, 1906; for many years affiliated with Central State Hospital in Lakeland; medical examiner for fraternal orders; died October 13, aged 74, of virus pneumonia.

Turberville, Joe Ivey ⊕ Century, Fla.; Medical College of Virginia, Richmond, 1929; member of the Southeastern Surgical Congress and the Industrial Medical Association; fellow of the American College of Surgeons; served during World War II; an owner of Turberville Hospital; killed in Alabama October 20, aged 48, in an automobile accident.

Watson, Chester Aubrey, Ballinger, Texas; University of Arkansas School of Medicine, Little Rock, 1908; died October 7, aged 70, of multiple myeloma.

Woodman, Ernest Lester Jr., Marblehead, Mass.; Tufts College Medical School, Boston, 1939; member of the American Medical Association; served in the medical corps of the U. S. Naval Reserve in the South Pacific area during World War II; certified by the National Board of Medical Examiners; died recently, aged 39.

⊕ Indicates Fellow of the American Medical Association.

GOVERNMENT SERVICES

ARMY

Medical Society Meetings on the Battlefield.—The following information concerning this subject was received from Dr. Albert S. Hyman, 450 E. 63rd St., New York City: "Continuing the discussion concerning the first medical society to be organized and function on the battlefield (THE JOURNAL, Nov. 17, 1951, page 1156 and Jan. 12, 1952, page 127) I would like to say for the record that the first meeting of the South Pacific Medical Society was held at Noumea, New Caledonia, on Sept. 2, 1942. The Solomon Islands Medical Association was organized at Espiritu Santos, New Hebrides, on Jan. 8, 1943; the Guadalcanal Section held its first meeting on Jan. 12, 1943, while the battle was at its height."

Grant to Study Edema and Dehydration.—The Quartermaster Division of the Army has made a grant of $40,000 to the department of biochemistry of Northwestern University Medical School, Chicago, to extend investigations on edema and dehydration. The work is being done in cooperation with the Research Service at Veteran's Administration Hospital, Hines, Ill., and with the Army's Climactic Research Laboratory, Lawrence, Mass.

Dehydration is especially important because it affects the efficiency of the soldier as well as his ability to recover from wounds. It is a problem the armed forces face in areas where water supply for troops is likely to be frozen, dried up, or contaminated. Study of the amount and distribution of body water will be aided by the use of "tagged" molecules of water containing deuterium (heavy hydrogen).

PUBLIC HEALTH SERVICE

Nurse Officer Assigned to Beirut.—Mary Mills, U. S. Public Health Service nurse officer, has been assigned to the new Point Four Program in Beirut, Lebanon, effective about February 1. She will act as advisor to the Ministry of Health of Lebanon on nursing, and work with local nurse associations and other health officials. En route to Beirut, she will stop in London to confer with the executive secretary of the International Council of Nurses, at the headquarters of the World Health Organization in Geneva for conferences, and in Alexandria, Egypt, for conferences with the nurse consultant to the WHO regional office there.

Miss Mills recently returned from Monrovia where she has been chief nurse of the U. S. Public Health Service Mission in Liberia for five years. During her assignment, she assisted in organizing the Tubman Nursing School in Monrovia, Liberia. Liberia has gone a long way toward establishing nursing as part of the public health program in that country. Miss Mills was active in the establishment of a 25-bed children's wing in the Maternal and Child Welfare Center of the Liberian Government, a health education program, and public health library.

Research on Filariasis.—Dr. Leon Rosen, of the Laboratory of Tropical Disease, National Microbiological Institute of the Public Health Service, has been cited by the South Pacific Commission for his outstanding tropical disease research. For two years Dr. Rosen has been conducting entomological studies of filariasis as part of a research and control project of the Institut de Recherchez Medicales de l'Oceanie at Tahiti, in cooperation with the University of California Medical School at Los Angeles. During the past year he was able to demonstrate that at least one of the mosquito vectors of filariasis will readily become infected after feeding on filariasis patients with very low microfilarial blood counts. Since it was previously thought that such low counts were unimportant in the transmission of filariasis, this finding alters existing concepts of adequate control operations against this disease.

Personal.—Dr. Craig S. Lichtenwalner has been sent to Addis Ababa, Ethiopia, on assignment to the Public Roads Administration, Department of Commerce. He will conduct a preventive and clinical medical program for both American employees and native workers in connection with a road building project. The program is being administered by the Public Roads Administration in cooperation with the Ethiopian Government. A native of the State of Washington, Dr. Lichtenwalner received his medical degree in 1949 and his commission in the Public Health Service in January, 1951.——Two physicians from Lahore, Pakistan, arrived in the United States just before Christmas for four to six month periods of training under the Point 4 program of technical assistance. Dr. Muhammed Aslam Pirzada will study internal medicine, and Dr. A. Aziz Wyne will do special work in general and abdominal surgery. Both men are associated with the King Edward Medical College in Lahore. ——Dr. Justin M. Andrews has been appointed Officer in Charge of the Communicable Disease Center, Atlanta, succeeding Dr. R. A. Vonderlehr, who has been appointed Regional Medical Director for Public Health Service Region VI, succeeding Dr. F. V. Meriwether who has retired.

MISCELLANEOUS

Report on Illinois Mine Disaster.—Ignition of a moving body of gas pushed out of abandoned workings by falling roof and disrupted ventilation set off the explosion on Dec. 21, 1951, which took 119 lives in the Orient No. 2 mine of the Chicago, Wilmington and Franklin Coal Company at West Franklin, Ill., Bureau of Mines investigators reported to Secretary of the Interior.

The initial gas explosion raised and ignited clouds of coal dust that spread the blast and flames through a large part of the active workings of the mine, according to the bureau's report. Many of the men not killed by the extreme violence of the explosion were critically burned, or died as a result of "afterdamp" or carbon monoxide.

Director John P. Forbes of the bureau, interpreting the detailed report, said that one or more other bodies of gas later may have been ignited, causing a secondary explosion.

Secretary of the Interior Oscar Chapman and Director Forbes inspected the mine following the explosion. Forbes directed the 22 bureau men rushed to the scene to aid in rescue and recovery operations and supervised the bureau team of six experts who made the investigation.

The bureau investigators found it difficult to determine the direction in which the forces of the explosion moved as various pieces of heavy equipment had been pushed in several directions. This, together with the fact that the recording indicator at the fan showed two pressure waves with peaks about 3 minutes apart, strongly pointed to the possibility of two distinct blasts of great intensity.

The report of the bureau investigation lists the following conditions as responsible for the disaster:

1. An inadequate ventilating system in which air that ventilates the working sections of the mine first passes open approaches to abandoned and caving areas that contain explosive gas. No provision had been made at the time of the disaster to keep abandoned areas free from accumulations of explosive gas.

2. The operation of nonpermissible electrical equipment capable of igniting gas.

3. The presence of large accumulations of fine coal dust of an explosive nature created by mining operations. "This coal dust," the report says, "principally along roadways, was not removed from the mine or rendered inert by the application of sufficient rock dust."

FOREIGN LETTERS

ECUADOR

Severe Epidemic of Influenza in Ecuador.—Early in November, 1951, a number of cases of influenza appeared in the central provinces of Ecuador. At first, this was not regarded as unusual, since, at this time of the year, small epidemic outbreaks of this disease are common. However, the influenza spread rapidly, affecting a high percentage of the population, particularly in more populous cities, such as Quito and Guayaquil. The first investigation by the health organizations revealed that, in the schools and colleges of Quito, from 25 to 60% of the students were affected by influenza. This induced the Ministry of Public Education to temporarily close all schools, colleges, and universities in the provinces of Pichincha (Quito), Cotopaxi, Tungurahua, and Cimborazo, and to order closure of some educational institutions in other provinces. At present, Quito (230,000 inhabitants) is the city most severely affected by the epidemic. The health and welfare organizations and the Red Cross have coordinated in organizing a campaign to curb the spread of the epidemic and to treat the thousands of patients. There is almost no house in which there is not a person with influenza.

The symptoms are severe, although the outcome of most cases is favorable. Now, however, 17 fatal cases have been reported from the area surrounding Guayaquil. Many of the cases involve persons who have enjoyed good health and who suddenly, without prodromal symptoms, begin to have chills and, one or two hours later, temperatures as high as 39 and 40 C (102 to 104 F), severe headache, and severe muscular and joint pains. Children have the most diverse clinical pictures and the largest number of complications. Some children have a slight fever, accompanied by cutaneous hemorrhages and epistaxis; others have suppurating otitis media. The most frequent complication in children as well as in adults is tracheobronchitis.

The antibiotics are used liberally. Aureomycin and chloramphenicol (chloromycetin®) have given good results, especially if administered early. Both reduce the duration of influenza and lessen the severity of the symptoms. Unfortunately, owing to their high cost, these drugs are reserved for patients with considerable economic resources. Indigent patients are treated without charge by various health and welfare organizations.

NORWAY

Late Results of Resection for Gastroduodenal Ulcer.—In 1949, the medical department of the Haukeland Hospital in Bergen made a curious observation. Twenty-one patients (1% of all the patients) had been operated on for peptic ulcer, and all had suffered from ailments that could be related to peptic ulcer or the operation for it. In the spring of 1950, Dr. A. Drablös, Dr. V. Lindén, and Dr. P. Skjelbred gave follow-up examinations to all the patients who had undergone subtotal gastrectomy for peptic ulcer at the surgical department of the Haukeland Hospital from 1937 to 1946. Among the 492 patients thus treated, there were 313 who were reexamined in 1950 by personal interview, hemoglobin determinations, and erythrocyte counts. The late mortality and serious late complications were expressed in figures outnumbering those of earlier investigations. Anemia was demonstrable in 26.6% of the men and in 41.2% of the women; nervous ailments were found in 21.4% of the patients; and complete, subjective freedom from symptoms was found in 46.6%. Primary mortality, late mortality, and serious postoperative ailments accounted for 20% of the total, whereas "satisfactory results" had been achieved in about 80%.

This investigation, which is reported in full in *Acta Medica Scandinavica*, is a valuable contribution to the solution of the problem of evaluating the comparative merits of conservative and operative treatment for gastric and duodenal ulcer. As the sponsors of this investigation point out, several observations in recent years have reflected adversely on the results of medical treatment, whereas a steady improvement in the immediate results of operative treatment has been reported. At present this treatment is being used with increasing frequency, with recovery reported in as many as 94% of the patients.

Late Results of Thoracoplastic Operations.—In "Thoracoplasty in the Treatment of Cavernous Tuberculosis of the Lung: A Clinical-Statistical Study of the Late Results," Dr. Erling Refsum reports on the value of thoracoplastic treatment of pulmonary tuberculosis. He compares the patients operated on with those who underwent conservative sanatorium treatment for similar lesions at an earlier, prethoracoplasty period. The patients undergoing thoracoplasty were operated on in the surgical department of the Rikshospital in Oslo from 1930 to 1939; the observation period was from 6 to 15 years. The controls were patients who had been given conservative treatment at the Glittre Sanatorium from 1921 to 1928; their observation period was 18 years or more. Dr. Refsum has succeeded in tracing all 391 thoracoplasty patients and 105 of the 106 control patients whose lesions and general prospects were, on the whole, more favorable. In spite of this balance in favor of the control group, the death rate among them was two and one-half times higher than among the patients undergoing thoracoplasty. Although 70% of the controls died within 12 years, 76% of the patients operated on were able to work, and 50% regained full capacity for work, which, in most cases, was heavy manual labor. The results were better for operations on the left than on the right side and better for men than for women. Patients with residual cavities a year after the operation had a high mortality rate, and the results of bilateral thoracoplasty were disappointing. Of the 25 infants born to women undergoing thoracoplasty, 22 were alive and well. Dr. Refsum has concluded that women who have become symptom-free after thoracoplasty can undergo pregnancy and confinement without much risk of aggravating the disease.

SPAIN

Congress of Surgery.—The Second National Congress of Surgery was held recently in Madrid, with an attendance of more than 500 surgeons from Spain and other countries. The inaugural session was presided over by the minister of state. The directors of the congress included Professor Palanca, general director of public health; Mr. Coca de la Piñera, general director of the national department of social assistance; Prof. Lain Entragolo, dean of the University of Madrid; Prof. Martín Lagos, president of the congress; Dr. Puig Sureda of Barcelona; Dr. Crespo Alvarez, president of the general council of medical schools; Dr. Lafuente, professor at the faculty of medicine of Madrid, and Dr. Gonzalez Bueno, general secretary of the congress.

During the congress, scientific sessions were held during the morning and afternoon, and surgical operations were done in various hospitals and sanatoriums. At the first session, presided over by Prof. Martín Lagos, the official topic was indications and technique of exeresis of the lung. Official speakers were Drs. Caralps Massó of Barcelona and Gonzalez Duarte of Madrid. Dr. Gómez Durán spoke on cranial trauma, Drs. García Morán of Oviedo and Val-Carreres Ortiz of Zaragoza spoke on indications and techniques for operation on a patient with bleeding stomach, and Drs. García-Tornel Carrós of Barcelona and Sánchez Bordona of Madrid spoke on evaluation of incapacity from accidents during work. Other speakers were Dr. Gil Turner, who spoke on closure of the main bronchus with gelatin foam in experimental pneumonectomy, and on resection of the lung in pulmonary suppuration and who showed a film, entitled "Pneumonectomy in Bronchiogenic Cancer." Professor Dogliotti of Rome spoke on extracorporeal circulation during exeresis

The items in these letters are contributed by regular correspondents in the various foreign countries.

of lung. Dr. Martínez Alonso's subject was exeresis of lung in pulmonary tuberculosis.

Other speakers and their subjects were: Dr. Manresa Formosa, absolute indication of resection of lung in tuberculosis, relative indications of resection of lung in tuberculosis, complications of exeresis of lung in pulmonary tuberculosis, and technique of suture used in exeresis of lung; Dr. Perera Prats, exeresis of lung; and Drs. Broggi and T. Seix, importance of hilar lymph nodes in origin of complications after exeresis.

Speakers at the second session were Drs. Obrador Alcalde y Hernandez de Larramendi, on importance of electroencephalography in encephalic and cranial trauma; Dr. López Trigo, on cranial trauma; Dr. Pérez Arias, on cranial trauma in civil practice: check-up and prognosis in 80 cases; and Dr. Núñez Puertas, on disappearance of symptoms of cerebral pressure immediately after blood transfusion.

Other speakers were Dr. Rementeria Aberasturi, on operation in patients with bleeding stomach; Dr. Sebastian Lacosta, on perforations of the stomach, duodenum and jejunum; Dr. Rodriguez Arias, on gastric hemorrhage and malignant arterial hypertension; Drs. Chamorro and López de Coca, on treatment of hemorrhage complicating gastroduodenal ulcer; and Dr. Artigas, on value of exploratory gastrectomy and massive gastric hemorrhage of splenic origin. Dr. Nogales Puertas spoke on evaluation of incapacity due to industrial accidents; Dr. Ximenez de Torres on the surgeon treating workers after industrial accidents; Dr. Moradillo on importance of medical examination prior to employment for evaluation of incapacity due to industrial accidents; Dr. Cámara Alberti on permanent partial incapacity and need for scale of indemnity of nonincapacitating residual lesions; and Dr. López Ibor on prognosis in cranial trauma.

During the congress, the permanent committee and the members of the Asociacion Española de Cirugía held a meeting under the chairmanship of Dr. Puig Sureda of Barcelona. Drs. Gomez Duran of Madrid and Ayguabella of Barcelona were appointed general and private secretaries of the association to fill the positions vacated by Drs. Tementeria y Díe and Mas. Dr. Juan Puig Sureda of Barcelona was elected president of the permanent committee, and Dr. Victor Manuel Nogueras of Madrid, vice-president.

The next National Congress on Surgery will be held at Granada, in May, 1953. Drs. Victor Escribano García and Francisco Mesa Moles were appointed honorary presidents of that congress, and Drs. Hernandez López and Juan Pulgar Ruiz, president and secretary. Official topics will be biliary stagnation, vascular grafts, etiological diagnosis of lumbar sciatica, and pretrochanteric fracture of femur. Official speakers will be Drs. García Baron, Gonzalez Bueno y Pera, Martín Lagos, Piulachas, Gascó, Lafuente, Moraza y Pulgar, Sanchez Cózar, Hernandez Ros, Roviralta, García Díaz, Hernandez López y Cuadrado, Cortés Lladó, Morgadas, López de la Garma, Echeverri, and López Trigo.

SWEDEN

Periodic Free Medical Examinations.—The Swedish Ministry of Health has recently prepared a plan for periodic free medical examinations. This plan has been submitted for examination to the Swedish Medical Association, which has consulted various other medical bodies before publishing comments on it. While the association approves, to a certain extent, the principles involved and is willing to cooperate in a further study of this plan, it is much impressed by its shortcomings and frankly deplores the failure of the Ministry of Health to draw sufficiently on the experience of the medical profession before publishing it. It is based to some extent on experiences in the United States, and it aims at drawing an objective picture of the health of a person in the course of a 15-minute examination. The Swedish public already enjoys many different health services, including examinations for tuberculosis by mass radiography, tuberculosis dispensaries, and BCG vaccination. In view of the work already done by these services and in view of the current shortage of both physicians and nurses, it seems doubtful that the plan could at present be put into force effectively. Would it not be wiser, the association asks, to develop slowly the institutions and facilities already existing? Why duplicate mass radiography, when this is already provided for in central tuberculosis dispensaries and most hospitals?

With regard to the early diagnosis of heart disease by mass radiography, as envisaged in the plan, the diagnostic value of this method is still under debate. Westman recently pointed out that examination of 64,000 radiograms revealed 328 cases of heart disease, 60 of which had not hitherto been diagnosed. This gives a diagnosis rate of one new case per thousand. Biörck and Blomquist have recently calculated that 3.5% of the people in this country suffer from heart disease. In other words, only a small fraction of the victims of heart disease can be found by mass radiography. As for the value of measuring the blood pressure in a 15 minute periodic health examination, it might yield a large number of high blood pressure records giving a distorted picture of the true situation.

Shortage of Physicians in the Army and Navy.—The decision of the Swedish government, in 1947, to conduct inquiries into the conditions under which the medical personnel of the armed services are appointed and distributed led to the publication in 1951 of an official memorandum on this subject. A little later, in October, 1951, the Swedish Association of Military Physicians issued a memorandum on the same subject, outlining the main difficulties and their most probable causes. It is evident from this memorandum that there has been for several years a serious shortage of fully qualified physicians in the army and navy, with 25% of the posts in these services filled unsatisfactorily, by temporary appointment of young physicians who lack the necessary training. Quick changes in such provisional appointments have inevitably impaired the efficiency of the army medical services. Men already in these services are in some cases leaving them for more attractive work in civilian life.

Physicians, veterinary surgeons, and dentists are the only members of the armed services employed on a part-time basis, with freedom to supplement their government incomes by private practice. This arrangement can result in a conflict of interests and loyalties. A physician's military duties must come first, which means he sometimes has to sacrifice his interests and those of his private patients by failing to give them prompt service. Another problem concerns the calls made on army physicians in connection with their teaching duties. The time required for such duties hinges to a large extent on the assistance well-trained nurses and orderlies can give. Such auxiliary teaching services should be employed as much as possible, limiting a physician's educational activities to those only he can undertake. Another important factor is the universal shortage of physicians in Sweden, which increases the competition between military and civilian medical needs.

Medical Research.—The State Medical Research Council plays an important part in the allocation of funds for medical research. It has recently decided that the personal expenses of research workers must be taken into account on a long-term basis, with a salary assured for three years, to be renewed for another three year period if necessary. This system will, it is hoped, provide for greater continuity of research activities. The council is financing research in the physiology of the human fetus. Material for such research is provided by the hospitals in which legal abortions are induced. The council is also promoting investigations into the effects of the legal induction of abortion on women, with special reference to psychological after-effects. Another activity the council hopes to promote concerns medical publications. Medical research on national defense includes investigations into the efficiency of various disinfectants and methods of disinfection. Special attention is being paid to new sources of disinfectants, such as the waste products of gas works and compounds of arsenic. Other research projects requiring special funds are those on blood transfusion and substitutes for blood, and the treatment of burns with special reference to the prevention of shock.

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CORRESPONDENCE

INTERNATIONAL COLLEGE OF SURGEONS

To the Editor:—In order to clarify certain misconceptions based on unfounded rumors concerning the Qualification Board of the International College of Surgeons, it is our desire to reemphasize the functions of our examining body.

The qualifying examinations we established in 1946, are in no way intended to invade the province of the American Boards of Surgery or any other national board. These rigid examinations have been created for the specific purpose of establishing the qualifications of those applying for membership in the International College of Surgeons exclusively. At no time has the International College of Surgeons been in competition with any surgical organization. As a matter of fact, the vast majority of our fellows are also members of other existing boards and organizations approved by the American Medical Association and the Advisory Board for Medical Specialties.

United States Chapter
(International College of Surgeons)
HENRY W. MEYERDING, M.D., *President*
Rochester, Minn.
ARNOLD JACKSON, M.D., *Secretary*
Madison, Wis.

INTERN SHORTAGE

To the Editor:—In the past 10 years, hospitals have suffered from a shortage of interns and residents. In many cases, they have tried to solve the problem by increasing the work load of their house staff, increasing salaries, or by unethical competition for persons to fill those posts. These may temporarily solve an individual hospital's problem, but, in the long run, they work to the detriment of the house staff, lower educational standards, and lower general hospital medical standards.

It is proposed that committees that regulate and pass on approved residencies and internships attack this exploitation more definitively. It is dishonest for a hospital with nine approved internships to assign all of its patients to the four interns it can attract. Committees have established definite elastic standards of patient load that a resident can carry and have sufficient time for study, conferences, ward rounds, and all the necessities of a well-rounded educational experience.

Hospitals that are short of house staff should not be permitted to go beyond these patient loads indefinitely. Part-time externes, general externes, full-time salaried men, or junior attending men must be assigned to the other patients admitted. This will not divide hospitals. Attending staffs can still keep responsibility for all patients, can shunt suitable patients from one group to the other.

This plan would improve present high educational standards. It would prevent a now perceptible trend of large medical centers attracting all available interns. Removal of noncooperative hospitals from approved lists would represent simple honesty.

HARVEY POLIAKOFF, M.D.
74 N. Village Ave., Rockville Centre, N. Y.

PHYSICIANS IN MOTION PICTURES

To the Editor:—If anyone doubts that the careers of doctors are dramatic, he has only to review a few statistics culled from the files of the Motion Picture Association of America. According to these records, doctors appeared in films 237 times in 1950, and 211 times in 1949. These figures are based on a review of 428 feature-length films approved by the Production Code Administration in 1950, and on 411 approved in 1949. On the basis of simple arithmetic, this means that doctors appeared, on the average, in every other picture!

This observation is not meant to be mathematically exact, of course, since actually several or many doctors may have appeared in a single picture, as, for instance, this year's popular film from 20th-Century Fox "People Will Talk."

How many times were doctors portrayed as villains? According to these charts, 13 times in 1950, but only 3 times in a prominent manner. In 1949 the pattern was almost exactly the same; three times prominently, and nine times in a minor way. This does not necessarily mean that the portrayal showed doctors as guilty of malpractice or unethical conduct; they may simply have been the father of the heroine, blocking her access to the lover in some unreasonable manner.

It is significant to note that not once in 1950 were doctors portrayed unsympathetically as a group, although they were shown 4 times sympathetically as a group and 14 times in an indifferent manner (neither sympathetically nor unsympathetically). The situation was about the same in 1949: not once unsympathetically, 3 times sympathetically, and 16 times indifferently.

As opposed to these portrayals, they appeared in a sympathetic light 167 times (1950), or at a very enviable average of about 13 to 1, and 153 times (1949), or at a ratio of exactly 12.75 to 1. The breakdown of these figures is as follows:

	1949	1950
Sympathetic and prominent	22	21
Sympathetic but minor	128	142
Sympathetic as a group	3	4

The statistical charts also reveal another interesting item. Only twice in 1950 were doctors portrayed as comics, and both times in a minor capacity. Evidently, film makers have passed over some of the humor of a doctor's existence, and perhaps there is a clue in this for an alert scenario writer. All other appearances of doctors, whether prominent, minor, or as a group, are labelled as "straight." And, as might be expected, the figures for this type of portrayal are similar for 1949: once comic in a prominent way, twice in a minor way, and never as a group.

As compared with other professions, the doctors fared exceptionally well on the screen. Only two groups had more representation in pictures in 1950. The military was the highest, with 311 appearances, and the police next, with 306. For the previous year the figures were 248 for the military (again highest) and 233 for the police. Next in line after the doctors, the number falls to 144 for police detectives in 1949, and 162 for the same group in 1950. These figures are an eloquent commentary in themselves as to what is appearing, at least in terms of bulk, on the average motion picture screen.

Statistics for 1951 are not yet available; however, there is no reason to believe that there would be any significant departures from the tables discussed above.

JOHN A. VIZZARD
Motion Picture Association of America, Inc.
8480 Beverly Blvd., Hollywood 48, Calif.

NEED FOR MICROSCOPES

To the Editor:—May I take this means of calling the attention of your readers to a great need in the leprosy field that could be generously met by a simple and inexpensive kindness on their part?

Successful treatments with the use of sulfone drugs are rapidly changing the once hideous face of this historic disease, but the careful administration of the sulfones requires clinical laboratory work such as has never before been necessary in many of the 157 leprosy treatment stations that American Leprosy Missions, Inc., aids throughout the world. Missionary doctors and nurses are suddenly calling upon us for microscopes. New ones, with special attachments, are not necessary. Second-hand ones, if they are still suitable for clinical laboratory work, would be most welcome.

Would your readers be so good as to take some of them down from closets, shelves, and storerooms where they are laid aside and send them to us at 156 Fifth Ave., New York 10?

EUGENE R. KELLERSBERGER, M.D.
156 Fifth Ave., New York 10.

BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Malpractice: Duty of General Practitioner to Refer Case to Specialist.—The plaintiff filed suit for damages alleged to have been caused by the negligence of the defendant dentist. From a judgment in favor of the plaintiff, the defendant appealed to the Supreme Court of California.

The plaintiff testified that, following a consultation with the defendant dentist, he was told that an impacted left lower bicuspid should be removed. He stated that the defendant said that the extraction of the impacted tooth would be "quite an operation" and "we may have to call in another surgeon on it, a man who is well known, who knows these things well." He said he was not told that a nerve might be severed as a result of the operation. The defendant dentist admitted that he did not warn his patient of the danger of injury to the mandibular nerve, other than to tell him that it was a dangerous operation. But he did tell the plaintiff he had consulted with Dr. Huenergardt, an oral surgeon, and that this man might be called upon to perform the extraction. However, according to the defendant, "I made mention of the fact too, that it would be more expensive and, therefore, between us we decided that I would do it."

The plaintiff presented the testimony of an expert tending to prove that it is customary for a general practitioner to refer the extraction of impacted lower bicuspids to an exodontist or oral surgeon. This expert was asked whether it is customary for a general practitioner of dentistry in Los Angeles to inform a patient prior to the extraction of a tooth such as a lower left second impacted bicuspid, that there may be a serious injury to the "mental" nerve and the possibility of a resulting numbness of his lip. The doctor replied, "I think any dentist in Los Angeles who does such an operation would inform the patient of the likelihood of the complication because it is a great likelihood that it would occur." An oral surgeon testifying as an expert on behalf of the defendant, however, said that it was customary and proper for general practitioners of dentistry in the locality, observing required standards of care, to extract impacted teeth. He gave several reasons why a dentist may refer his patient to a specialist, but he specifically stated that it was not the customary practice for a general practitioner to refer a person with a completely impacted left lower second bicuspid to an exodontist for extraction. As he put it, "many men do their own extractions. As I stated before, it all depends on how the man feels about his ability." The defendant's expert also told the jury that the danger of traumatization is present whether an exodontist or a general practitioner performs the extraction. Traumatization of the mandibular nerve, he said, occurs in approximately 25 per cent of extractions such as that performed by the defendant.

The defendant argued that the failure of a general practitioner to refer a patient to a specialist is not actionable in the absence of proof that, in the treatment of the patient, there was a failure to exercise the degree of skill and learning employed by specialists practicing in the same locality.

In discussing the instructions which were given by the trial court, the Supreme Court said that they failed to state that there is a duty to refer a patient to a specialist only if, under the same circumstances, a reasonably careful and skillful general practitioner would have done so. The general practitioner's duty must always be measured in relation to the facts in the particular case. In determining a course of action, he may and should consider such elements as the patient's mental and emotional condition, his known financial situation, and the many other variants which a physician meets in treating human ailments. However, continued the court, assuming that under the evidence, the defendant should have referred the plaintiff to a dental surgeon, there is an entire failure of proof that in extracting the tooth he did not use the skill and care of such a specialist. The question as to whether there was proper care in the treatment of a particular case is one to be determined by the opinions of experts and the failure to use such care can be established only by their testimony. Negligence on the part of a physician or surgeon will not be presumed; it must be affirmatively proved. On the contrary, in the absence of expert testimony, it will be presumed that a physician or surgeon exercised the ordinary care and skill required of him in treating his patient.

In the record before us, the Supreme Court concluded, no expert witness stated that anything done by the defendant constituted improper treatment. Neither is there any evidence to show that he did anything which a reasonably prudent and skillful oral surgeon would not have done. For all that appears, the plaintiff's tooth was extracted with the care and skill he would have received at the hands of a specialist. Accordingly the judgment in favor of the plaintiff was reversed. *Simone v. Sabo, 231 P. (2d) 19 (California 1951).*

MEDICAL MOTION PICTURES

The Exfoliative Cytologic Method in the Diagnosis of Gastric Cancer: 16 mm., color, sound, showing time 19 minutes. Prepared by Cornell University Medical College and New York Hospital under the supervision of George N. Papanicolaou, M.D., and William A. Cooper, M.D. Produced in 1951 by and procurable on purchase from the American Cancer Society, 47 Beaver Street, New York 4, and on loan from state cancer societies.

The background of this cytological method is briefly shown, its present usefulness and disadvantages are indicated, and the procedure is visually presented by live photography and stylized animated drawings. The method consists of insertion of a double lumen tube through the mouth into the stomach. On the end of the tube is tied a rubber balloon surrounded by a coarsely woven net, similar to a woman's veil. After the tube is inserted, the balloon is distended with air and allowed to pass down to the pylorus. It is then pulled back manually, and this process is repeated several times. After the tube is removed, the clumps of cells or fragments of tissue are picked off the knots of the veil, and the veil itself is washed and the fluid centrifuged. The clumps of tissue and sediment are fixed, stained, and examined under a microscope. The authors report a very high incidence of accurate diagnosis in 100 cases studied. Since the x-ray diagnosis is so inaccurate in differentiating benign gastric ulcer from malignant gastric ulcer, this additional method in diagnosis should, at least, be given extensive trial. This picture is well planned and well organized. The photography, animation, and narration are excellent. It is recommended for clinicians dealing with gastric lesions and also for students and interns, since they take an active part in preoperative diagnosis.

Uterine Cancer: The Problem of Early Diagnosis: 16 mm., color, sound, showing time 20 minutes. Sponsored by the American Cancer Society and the National Cancer Institute. Produced in 1951 by Audio Productions, Inc., New York. Procurable on purchase from the American Cancer Society, 47 Beaver Street, New York, or on loan from state cancer societies and state health departments.

The incidence of cancer of various sites in the female genital tract (International Classification) is given, with survival rates indicated for each. Symptomatology and aids in diagnosis are visually presented in animated drawings for each stage of cervical cancer, including stage O. The role of cytology in early detection is stressed, its technique visually described, and diagnostic criteria illustrated. Dr. Papanicolaou sounds a note of caution in using the method in diagnosis, by indicating that a positive smear should be confirmed as a matter of routine by biopsy and tissue diagnosis. The Schiller test and methods of biopsy are included.

The film calls attention to the importance of a complete physical examination, bimanual examination, visual inspection of the cervix, rectal examination, and aspiration of the cul de sac, together with this very simple method of securing cells from the cervical canal. Several case reports are shown to illustrate these points. It is presented entirely from the standpoint of early diagnosis of uterine malignancy. It does not include a discussion of treatment. The picture is well organized. The photography, animation, and narration are excellent, and the film is highly recommended for the general practitioner, the advanced medical student, and hospital staff meetings.

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MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A.M.A. Arch. Dermat. and Syphilol., Chicago

64:533-666 (Nov.) 1951

"Chemical" Analysis of Intact Skin by Reflectance Spectrophotometry. J. W. Goldzieher, I. S. Roberts, W. B. Rawls and M. A. Goldzieher. —p. 533.
*Cortisone and Corticotropin (ACTH) in Treatment of Scleroderma. R. R. Kierland and E. A. Hines Jr.—p. 549.
Physiological and Chemical Changes in Radiation Injuries. F. T. Jung. —p. 555.
Progesterone Therapy of Acne: Clinical Evaluation. H. M. Lewis, G. M. Frumess and E. J. Henschel.—p. 562.
Evaluation of Chloramphenicol in Treatment of Chronic Discoid Lupus Erythematosus. H. M. Robinson.—p. 565.
*Cortisone Acetate Administered Orally in Dermatologic Therapy. M. B. Sulzberger, V. H. Witten and S. N. Yaffe.—p. 573.
Bismuth Putty in X-Ray Shielding: Efficiency of Material and Advances in Technique. J. W. Wilson and R. Luikart II.—p. 580.
Appraisal of Toxicity of Sunscreen Preparations. J. H. Draize.—p. 585.
Lichen Corneus Hypertrophicus (Lichen Ocreaformis, Lichen Obtusus): Analysis of Conditions with Which This is Confused. A. B. Hyman and B. D. Erger.—p. 588.
Antibiotic Sensitivity and Moniliasis. A. J. Reiches.—p. 604.
Podophyllotoxin Treatment of Microsporum Audouini Scalp Infections. C. J. Young.—p. 607.
Congenital Ichthyosiform Erythroderma: Report of Two Cases in Siblings, One Complicated by Kaposi's Varicelliform Eruption. W. C. Fitzgerald and A. P. Booker.—p. 611.
Lichen Sclerosus et Atrophicus and Related Disorders. C. W. Laymon. —p. 620.
Treatment of Urticaria and Dermatitis Venenata with Corticotropin (ACTH) and Cortisone. G. H. Ekblad.—p. 628.

Cortisone and Corticotropin in Scleroderma.—Four women between 21 and 36 with scleroderma were treated with cortisone. The drug was administered in doses of 50 mg. to 100 mg. daily for 7 to 37 days, the total dose varying from 700 mg. to 3,700 mg. Two patients were given four courses of treatment, one patient was given three courses, and one patient one course. All patients had pronounced improvement, especially in rheumatic manifestations, during and shortly after treatment. In three patients the symptoms reappeared within a few weeks after treatment had been discontinued, whereas in the fourth patient the remission was maintained for at least five months. In three patients treatment was repeated and appeared to bring about the same improvement in less time and with a smaller total dose than had been required in the preceding courses. Gradually decreasing doses followed by low maintenance doses may provide more lasting benefits. In one patient, who had received a total of 700 mg. of cortisone, measles with signs of encephalitis developed 24 hours after her third course of therapy. The acute symptoms led to the death of the patient. Acute extensive bronchopneumonia was revealed by necropsy, emphasizing that cortisone should not be administered to patients with acute infections. Of two other women with scleroderma treated with corticotropin (ACTH), one was given 80 mg. daily for 10 days, and the other 75 mg. daily for 16 days. There was no demonstrable objective or subjective improvement within six weeks after treatmtent. This may have been due to bad timing of administration of the hormone. In the authors' experience cortisone had the greatest clinical effect of any agent yet used in treatment of scleroderma, producing definite remission of symptoms for varying periods, yet it does not cure scleroderma.

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Titles marked with an asterisk (*) are abstracted.

Oral Cortisone Acetate in Dermatoses.—Thirty-two patients with various dermatoses, such as atopic dermatitis, dermatitis herpetiformis, urticaria, distinctive exudative discoid and lichenoid chronic dermatitis, and pemphigus vulgaris, were given cortisone acetate orally, the starting dose varying between 100 and 200 mg. per day. The dose was reduced as rapidly as each patient's response permitted, with the object of reaching the lowest effective dose as quickly as possible. The response of most patients to the drug was dramatic, with abatement of symptoms within 24 hours and substantial improvement of clinical signs within 24 to 48 hours. Changes in the daily dose were made most frequently by increments of 25 mg. per day, although occasionally larger or smaller increments were used. Adverse effects, possibly due to the drug, were noted in five patients as follows: moon face developed in two patients, one with hypertrichosis and a 20 lb. (9.1 kg.) gain in weight (both had received corticotropin [ACTH] previously); a third patient showed hyperpigmentation of the areas of skin usually exposed and not covered by clothing; and two other patients each complained of hyperexcitability and insomnia. All these undesirable effects diminished or disappeared after the dose was reduced or administration of cortisone was discontinued. The effectiveness of this new therapeutic approach in a wide variety of skin diseases was clearly demonstrated. No other method of treatment seems to have comparable beneficial effects. The authors emphasize that the benefits generally stop soon after cessation of treatment, unless spontaneous remissions occur. Disagreeable and sometimes dangerous effects still preclude the use of this treatment except in serious diseases, and when the patient can be kept under close and expert surveillance.

A.M.A. Arch. Otolaryngology, Chicago

54:467-608 (Nov.) 1951

Management of Deformities of Lower Cartilaginous Vault. S. Fomon, I. B. Goldman, H. Neivert and A. Schattner.—p. 467.
New Method of Plugging Eustachian Tube in Radical Mastoidectomy Using Polyethylene Prosthesis. S. O. Siemssen.—p. 473.
*Pathology of Bell's Palsy. A. Hall.—p. 475.
Face-Lift Operation by Rotation Flaps. S. Fomon, I. B. Goldman, H. Neivert and A. Schattner.—p. 478.
Bacteriologic and Epidemiologic Approach to Treatment of Sinorespiratory Infections: Series II. Observations on Efficacy of Antibiotics with Continued Use. S. J. Prigal, N. Molomut and A. Haber.—p. 493.
Cortisone in Behcet's Syndrome: Report on Patient with Lesions of Genitalia, Mouth, Pharynx, and Larynx Necessitating Repeated Tracheostomies. D. S. Kenet.—p. 505.
Spontaneous Intramaxillary Hemorrhage. C. H. LaClair Jr.—p. 510.
True Cholesteatoma of Temporal Bone. M. J. Tamari and A. E. Fogo. —p. 518.
Hemilaryngectomy—Modified Technique for Cordal Carcinoma with Extension Posteriorly. M. L. Som.—p. 524.
Special Kind of Acoustic Trauma Produced by Jet Engines. L. Rüedi and W. Furrer.—p. 534.
Sturge-Weber Disease as Otolaryngological Problem. R. J. McMahon. —p. 542.
Nasopharyngeal Fibroma Treated by Unusual Measures. G. H. Penha. —p. 547.
Calcified Cervical Node Masquerading as Foreign Body. E. L. Manning. —p. 550.
Cricothyroid Subluxation. W. J. Loeb.—p. 553.
New Right-Angle Otoscope Facilitating Differential Diagnosis in Tympanic Pathology. S. H. Gidoll.—p. 554.
Technique in Use of Posterior Nasal Pack. C. B. Turnblacer.—p. 558.
Plastic Surgery During Years 1949 and 1950. L. A. Peer, J. C. Walker Jr. and F. A. Marzoni.—p. 560.

Pathology of Bell's Palsy.—Decompression of the facial nerve from the stylomastoid foramen to the lateral semicircular canal was recommended for persistent Bell's palsy by Ballance and Duel in 1932. Several other investigators have performed this operation. One of them, Kettel, has concluded that the ischemia near the stylomastoid foramen, which is considered the cause of Bell's palsy, in most cases affects the nerve only as the most susceptible tissue; in other cases, however, the surrounding more resistant bone is also affected, the result being an ischemic bony necrosis. In this paper Hall presents three cases of Bell's palsy in which resection of the mastoid cells and decompression of

the facial nerve were done. In all cases an exudate was found in the cells at the tip of the mastoid process and in one some larger cells contained a yellow serous fluid. The bone near the stylomastoid foramen was definitely soft and the facial nerve very edematous. These observations confirm those of Kettel and support his views on the pathological changes in Bell's palsy.

Antibiotic Treatment of Sinorespiratory Infections.—Prigal and Molomut earlier had described a method for selecting the most effective antibiotic in respiratory infections, including growth of a culture as well as in vitro inhibition tests. This report continues the earlier studies. Material was taken from patients with sinorespiratory infections for cultures in dextrose-phosphate broth. The material was incubated for four hours (during the lag phase of growth), and subcultured to differential mediums, blood plates and dextrose-phosphate broth, containing the various antibiotics. A total of 332 organisms were isolated from 174 cultures. Of these, 15 were isolated from the nose, 269 from the pharynx, and 9 from the eye or eyelid. Hemolytic staphylococci and streptococci predominated. A comparison of these and earlier results shows a greater incidence at present of organisms that are more resistant to the antibiotics. The in vitro actions of penicillin, bacitracin, streptomycin, aureomycin, and terramycin against these organisms were grouped into three categories: complete inhibition, no inhibition, and partial or temporary inhibition. Of the organisms isolated, 3.9% were not inhibited by any of the antibiotics. Other evidence also indicates a wide area of ineffectiveness of the five antibiotics against organisms cultured from sinorespiratory infections. Certain organisms showed a tendency toward familial occurrence. In one family a girl who had asthma due to allergic and infectious factors harbored a hemolytic Staphylococcus in the pharynx and on the eyelids (from blepharitis since early childhood). Two younger sisters harbored the same organism but were not ill, possibly because they had greater "immunity." It would seem logical to treat them although they are apparently well, not only for their sakes but also for the sake of their sister. Blepharitis was implicated as a focus of infection and reinfection in a number of other cases.

American Journal of Medical Sciences, Philadelphia

222:365-484 (Oct.) 1951

*Procaine Amide (Pronestyl) in Treatment of Cardiac Arrhythmias. J. M. Kinsman, W. R. Hansen and R. L. McClendon.—p. 365.

Hemodynamic Changes Following Procaine Amide Administered Intravenously. R. L. McClendon, W. R. Hansen and J. M. Kinsman. —p. 375.

Quinidine Treatment of Auricular Fibrillation. M. J. Goldman.—p. 382.

*Successful Use of ACTH in Treatment of Agranulocytosis Due to Sulfadiazine. J. S. McMillin.—p. 392.

Effect of Antibiotics (Penicillin, Aureomycin, and Terramycin) on Fatality Rate and Incidence of Complications in Pneumococcic Pneumonia: Comparison with Other Methods of Therapy. H. F. Dowling and M. H. Lepper.—p. 396.

*Studies on Antibiotic Synergism and Antagonism: Interference of Aureomycin, Chloramphenicol and Terramycin with Action of Streptomycin. E. Jawetz, J. B. Gunnison and R. S. Speck.—p. 404.

Aureomycin in Infectious Mononucleosis: Control Study. G. A. Cronk. —p. 413.

Correlation of Electrocardiographic and Pathologic Findings in Ring-Like Subendocardial Infarction of Left Ventricle. G. B. Myers, C. H. Sears and T. Hiratzka.—p. 417.

Serum Lipid Studies in Euthyroid Subjects Following Administration of Thyroid. A. Soffer, P. N. G. Yu, M. A. Epstein and E. S. Olsan. —p. 427.

Lipomicronemia in Mice Caused by Parenteral Administration of Fat. P. Ermala, L. R. Holsti and K. Setälä.—p. 436.

Serum Amylase Response to Pancreatic Stimulation as Test of Pancreatic Disease. T. S. Malinowski.—p. 440.

Typhoid Fever: Chloramphenicol Therapy and Problem of Relapse. W. V. Matteucci, N. H. Schimmel and W. P. Boger.—p. 446.

Extremity Blood Flow in Dog in Presence of Obstructive Arterial Clots. J. N. McClure Jr. and R. A. Murphy Jr.—p. 452.

Some Aspects of Adrenocortical Function in Cardiac Decompensation. E. M. Lasché, W. H. Perloff and T. M. Durant.—p. 459.

ACTH and Cortisone in Rhinolaryngology. N. D. Fabricant.—p. 468.

L. E. Cell and Phenomenon in Lupus Erythematosus. H. Beerman. —p. 473.

Procaine Amide in Cardiac Arrhythmias.—Kinsman and associates gave procaine amide ("pronestyl") intravenously to 41 patients, who had a total of 51 arrhythmias, and to 11 patients with normal sinus rhythm. Several patients with arrhythmias had both auricular fibrillation and ectopic ventricular contractions. In general, arrhythmias of supraventricular origin were not influenced by the drug, except auricular ectopic contractions and recent (paroxysmal) auricular fibrillation. Ventricular ectopic contractions were abolished in 12 of 14 instances. Ventricular tachycardia was abruptly stopped in two of four patients; the remaining two died, one being moribund when the drug was administered, while the death of the other may have been either due to the drug or in spite of it, and conceivably might have been averted by a larger dose administered more rapidly. Subjective toxic effects were rare, but objective toxic effects such as a fall in peripheral blood pressure and pulmonary arterial pressure, decrease in cardiac output, and increase in circulation time and intraventricular conduction times were the rule. No serious toxic effects were observed, except possibly in one of the two fatal cases of ventricular tachycardia. The authors conclude that the intravenous administration of procaine amide should be reserved chiefly for patients with paroxysmal rapid heart action who are in immediate danger of death, or in whom the oral administration of procaine amide or other measures have failed, and for patients under anethesia.

Corticotropin Treatment of Agranulocytosis.—In the case reported here agranulocytosis due to toxic depression of the bone marrow was produced by a sensitivity reaction to sulfadiazine administered for cystitis and pneumonia. On Dec. 12, 1950, a routine white blood count, which previously had ranged from 7,200 to 13,200, was found to be 2,900 per cubic millimeter with 39% neutrophils, 60% lymphocytes, and 1% monocytes. During the next six days the patient's white count steadily fell to a low of 450 cells, all of which were lymphocytes. At this time the patient had chills, temperature elevation to 105 F, rapid and shallow respirations, cyanosis of the lips and nail beds, and a gallop rhythm. His death appeared imminent. A sternal marrow study showed an almost complete arrest of maturation of the myeloid cells. Beginning December 19, 25 mg. of corticotropin (ACTH) was given every six hours for three days. Then the dose was gradually decreased, a total of 500 mg. being given in seven days. Within 24 hours after corticotropin was started the patient felt much better. After 72 hours the temperature had returned to normal, and the patient was asymptomatic. A bone marrow study two days after corticotropin therapy was begun showed a great change, and a third marrow examination eight days later revealed granulopoietic activity without maturation defect. Fifty days after the onset of agranulocytosis and 31 days after treatment with corticotropin, the peripheral blood was still normal.

Interference of Aureomycin, Chloramphenicol, and Terramycin with Streptomycin.—An editorial in the *British Medical Journal* on antibiotic synergism and antagonism suggested that it might be "a general principle not to combine a bacteriostatic with a bactericidal agent of the penicillin type." This study on antibiotic action in vitro and in experimental infections in mice demonstrates that either of the two bacteriostatic drugs (aureomycin and chloramphenicol) interferes with the action of either of the bactericidal drugs (penicillin and streptomycin). The magnitude of antagonism to streptomycin is somewhat less than to penicillin, particularly in multiple dose experiments in a streptococcal infection in mice. Thus penicillin, streptomycin, and perhaps bacitracin belong in one group; aureomycin, chloramphenicol, and terramycin in a second group. Drugs of the second group may all, though not to the same degree, interfere with the action of drugs in the first group. The agents of the first group appear to be synergistic with each other, and to be capable of overcoming the interference by the drugs of the second group. The interference of aureomycin, chloramphenicol, and terramycin with the action of streptomycin is a unilateral phenomenon. Such interference may therefore be observed only if the infecting micro-organism is susceptible to streptomycin. If the bacterium is resistant to streptomycin to begin with, no interference can be observed. On the contrary, with a resistant organism true synergism, with a marked increase in early bactericidal rate, may be demonstrated between streptomycin and, for example, terramycin. A patient illustrating such a problem and cured by this drug combination has been observed. The

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authors feel that a drug antagonism that can be demonstrated only under highly selected circumstances in experimental infections is unlikely to be important clinically, including the interference of aureomycin and terramycin with the action of streptomycin. Whether the antagonism of chloramphenicol to streptomycin is of sufficient magnitude to cause concern must be determined by further experimentation and clinical experience.

American Journal of Physiology, Baltimore

166:493-742 (Sept.) 1951. **Partial Index**

Effect of Cortisone upon Work Output of Adrenalectomized Rat. D. J. Ingle, J. E. Nezamis and E. H. Morley.—p. 504.

Effects of Cortisone on Mechanism of Increased Capillary Permeability to Trypan Blue in Inflammation. V. Menkin.—p. 509.

Effects of ACTH on Mechanism of Increased Capillary Permeability to Trypan Blue in Inflammation. V. Menkin.—p. 518.

Circulating Leukocytes in Sodium Chloride Deficient Rats and Their Response to Epinephrine, ACTH, Cortisone and Desoxycorticosterone Acetate. H. G. Danford and P. A. Danford.—p. 524.

Effects of Caloric Restriction, Salt Restriction and Role of Pituitary and Adrenal Glands in Experimental Renal Hypertension. P. Handler and F. Bernheim.—p. 528.

Impaired Water Metabolism in Pyridoxine Deficiency and Effects of Pyridoxine and Adrenal Cortical Hormone. R. B. Stebbins.—p. 538.

Utilization of Antithyroid Action Test for Bioassay of Thymus Hormone. J. Comsa.—p. 550.

Effects of Hormone, Vitamin and Liver Supplements on Appetite and Growth of Young Rat During Recovery from Chronic Starvation. F. H. Quimby.—p. 566.

Effect of Aureomycin upon Blood Coagulation Time, Ac-Globulin and Prothrombin Activity. I. Innerfield, A. Angrist, J. W. Benjamin and L. A. Kanegis.—p. 578.

Blood Volume Changes in Protracted Shock Resulting from Experimental Myocardial Infarction. C. M. Agress, M. J. Rosenberg, M. J. Binder and others.—p. 603.

Alterations in Renal Hemodynamics and Function During Intravenous Injection of Epinephrine in Dog. C. R. Houck.—p. 649.

Effect of Sympathectomy on Gastric Secretion in Total Pouch Dogs. H. A. Oberhelman Jr., E. R. Woodward, C. A. Smith and L. R. Dragstedt.—p. 679.

Effect of Parasympathetic Denervation on Feline Bladder Function. F. G. Carpenter and W. S. Root.—p. 686.

Vomiting Center: Its Destruction by Radon Implantation in Dog Medulla Oblongata. S. C. Wang and H. L. Borison.—p. 712.

Effect of Diphenyl Hydantoin (Dilantin) on Ether and Pentobarbital (Nembutal) Narcosis. A. van Harreveld, R. J. Foster and G. D. Fasman.—p. 718.

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Failure to Produce Polycythemia in Man, Dog and Rabbit by Daily Administration of Ephedrine Sulfate. R. F. Schilling.—p. 59.

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Some Effects of Dehydroascorbic Acid on Central Nervous System. J. W. Patterson and D. W. Mastin.—p. 119.

Effect of Administration of Relatively Large Amounts of Insulin on Growth of Islets of Langerhans. M. A. Evans and R. E. Haist.—p. 176.

Effect of Eck Fistula Formation on Alloxan Diabetic Dogs. S. Koide and S. Freeman.—p. 193.

Renal Function Related to Acutely and Chronically Raised Intra-Abdominal Pressure in Anesthetized and Unanesthetized Dogs. D. M. French, P. A. Molano and W. M. Booker.—p. 241.

Protein Binding of *p*-Aminohippurate in Human and Dog Plasma. J. V. Taggart.—p. 248.

American Journal of Public Health, New York

41:1209-1332 (Oct.) 1951. **Partial Index**

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Paralytic Consequences of Poliomyelitis Infection in Different Parts of World and in Different Population Groups. A. B. Sabin.—p. 1215.

Atmospheric Conditions and Spread of Poliomyelitis. C. Armstrong.—p. 1231.

Criteria of Immunity and Susceptibility to Mumps in Young Adults. R. E. Wheeler and A. S. Benenson.—p. 1238.

Method for Delayed Cultural Identification of Neisseria Gonorrhoeae. A. C. Sanders and R. L. Hullinghorst.—p. 1240.

Staff Development Program in Human Relationships for Venereal Disease Control Workers. B. Safier and H. G. Corrigan.—p. 1244.

Mental Health in a Chest Clinic. H. Bauer.—p. 1251.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

66:521-700 (Oct.) 1951

Radiological Achievement 1937-1950: Advances in Clinical Radiotherapy. R. Paterson.—p. 521.

*Roentgenological and Pathological Observations in Antigenic Pneumonitis: Its Relationship to Collagen Diseases. L. R. Sante and J. P. Wyatt.—p. 527.

Roentgenologic Manifestations of Amebiasis of Liver with Concomitant Findings in the Chest. S. Schorr and A. Schwartz.—p. 546.

*Intra-Arterial Catheterization of Viscera in Man. H. R. Bierman, E. R. Miller, R. L. Byron Jr. and others.—p. 555

Carcinoid of Duodenum. J. R. Hannan, J. B. Hazard and R. E. Wise.—p. 569.

Subperiosteal Resorption of Bone: Roentgenologic Manifestation of Primary Hyperparathyroidism and Renal Osteodystrophy. D. G. Pugh.—p. 577.

Roentgen Appearance of Early Paget's Disease. W. B. Seaman.—p. 587.

Case of Generalized Osteosclerosis. J. Hinge and P. Menck-Thygesen.—p. 595.

Gastroileostomy: Case Report. C. L. Boice.—p. 601.

Value of Ventriculo-Encephalography in Planning Roentgen Therapy for Brain Tumors. E. P. Pendergrass and J. M. Phillips.—p. 603.

Two Million Volt Roentgen Therapy Using Rotation. J. G. Trump, K. A. Wright, H. F. Hare and S. W. Lippincott Jr.—p. 613.

Application of Radioactive Colloidal Gold in Treatment of Pelvic Cancer. A. I. Sherman, M. Bonebrake and W. M. Allen.—p. 624.

Antigenic Pneumonitis and Collagen Diseases.—The roentgenological and pathological aspects of collagen diseases were studied in an effort to throw light on the nature of these diseases. Observation seems to indicate that derangement of the intercellular collagenous substance may be an important factor in their development. These conditions with widely divergent clinical manifestations seem to have little to suggest a common etiology, but an associated pathological pulmonary reaction, which exists in all, might be a common denominator. Hypersensitive states such as serum reaction, drug sensitization, blood incompatability in transfusions, acute glomerulonephritis (with azotemic edema), periarteritis nodosa, rheumatic pneumonitis (in which transitory joint involvement is a prominent feature), rheumatoid arthritis, disseminated lupus erythematosus, dermatomyositis, and scleroderma are the collagen diseases discussed by the authors. They stress that pathological examination of the lungs reveals a striking similarity in most of the collagen diseases. Roentgenologically, the collagen diseases seem to be divided into two major groups: (a) those in which there is an acute antigenic response, associated with glomerulonephritis and antigenic (azotemic) pulmonary edema; (b) those in which there is no indication of lung reaction up to the terminal stages of the disease. At this time, pulmonary edema may occur, but it is never of the azotemic type, and irregular collagenous deposits are present throughout the lung. Roentgenologic examination helps in differentiating these two groups. The involvement of connective tissue in all of these diseases does not preclude the possibility of a number of etiological agents with consequent variation in response of the tissues. It may be found that such agents also include various bacterial and virus toxins that may, depending on the conditions present in the body, produce a wide variety of manifestations.

Intra-Arterial Catheterization of Viscera.—If an artery leading to an organ could be isolated, not only could the organ be visualized roentgenographically, but chemotherapeutic agents in high concentration could be administered directly to neoplastic lesions involving this organ. Furthermore, such an isolation of the arterial supply of an organ in vivo would make possible pharmacologic and physiological studies. A surgeon, radiologist, internist, and anesthetist together explored the feasibility of intra-arterial catheterization of viscera. Radiopaque, intracardiac catheters were used. The technique was first tried on cadavers and, after satisfactory skill had been achieved, 28 arterial catheterizations were performed on 24 patients with metastases from neoplastic diseases. The procedure, its hazards, risk, and experimental nature were explained to each patient, and agreement was obtained in all cases. In adults the procedure was carried out under local procaine anesthesia. A general anesthetic was administered to three children. The celiac axis, hepatic, renal, phrenic, lumbar, superior and inferior mesenteric, and iliac arteries were entered by means of an intra-arterial catheter introduced from the carotid and brachial arteries. The carotid, subclavian, internal mammary, vertebral, and thyrocervical trunk

arteries were catheterized by way of the femoral arteries. The arterial patterns of the liver, spleen, stomach, kidney, and diaphragm were visualized roentgenographically. While four serious complications in 24 patients is a high incidence, it is not prohibitively high considering that it was an initial effort mostly performed in patients with far advanced neoplastic illnesses. Since the complications noted seem avoidable, this procedure appears to have some value for the purpose stated.

Arizona Medicine, Phoenix

8:1-80 (Oct.) 1951

Nodular Tuberculosis of Lung. J. S. Chapman.—p. 21.
Partial Pulmonectomy. D. W. Melick.—p. 24.
Some Problems of Intestinal Obstruction. C. J. Baumgartner.—p. 26.
*Laryngeal Vertigo with Report of Two Cases. L. E. Beaton.—p. 30.

Laryngeal Vertigo.—In laryngeal vertigo, known also as laryngeal epilepsy and tussive syncope, unconsciousness, with or without convulsions, follows coughing. The syndrome is not widely recognized by physicians. It occurs in obese men of middle age, who are often hypertensive and emphysematous and have chronic laryngitis or bronchitis. Many use tobacco excessively. The cough that precedes the fainting or seizure is oftenest strong and paroxysmal. The two cases reported here occurred in obese males aged 51 and 67, respectively. The authors feel that the most probable reason for the fainting is that in coughing the patient performs the Valsalva maneuver of forced expiration against a closed glottis, increasing intrathoracic pressure, causing venous congestion of the head, lowering cardiac output, and bringing about cerebral anoxia. The term tussive syncope, as suggested by McCann and his co-workers, seems most logical, for the symptoms have nothing to do with the larynx, vertigo is not present, and epilepsy occurs rarely and then only as a complication in predisposed persons. The two cases here reported are examples of the syndrome with and without convulsions. When grand mal attacks occur during the syncopal episode, it seems likely that the patient has a latent cerebral dysrhythmia. Therapy is symptomatic, aiming at the cause of the cough. In cases with an epileptic compotent, anticonvulsants should be prescribed.

Bulletin of Johns Hopkins Hospital, Baltimore

89:339-418 (Nov.) 1951

Diagnosis of Carcinoma of Pituitary Gland. A. B. King.—p. 339.
Nerve Endings, Neurosecretory Substance and Lobular Organization of Neurohypophysis. D. Bodian.—p. 354.
Changes in Blood Volume Following Operation for Pulmonic Stenosis: Studies with Evans Blue and Radioactive Phosphorus. R. C. Clay, S. R. Elliott II and H. W. Scott Jr.—p. 377.
Cerebral Lesions in Congenital Heart Disease: Review of Autopsies on 162 Cases. M. Berthrong and D. C. Sabiston Jr.—p. 384.
Efficacy of Aureomycin in Treatment of Pneumococcal Lobar Pneumonia. R. Austrian, J. Barondess, G. S. Mirick and others.—p. 407.

Cancer Research, Chicago

11:741-820 (Oct.) 1951. **Partial Index**

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Effect of Tumor Growth on Liver Catalase Concentration. O. A. Klatt and A. Taylor.—p. 764.
Effect of Tumor Implants on Chick Embryo Liver Catalase Activity. E. R. Skavinski and A. M. Stein.—p. 768.
Phosphorus Metabolism in Resting and Pregnancy-Stimulated Mammary Glands and in Spontaneous Mammary Carcinomas of Mice. S. Albert, R. M. Johnson and M. S. Cohan.—p. 772.
Comparison of Nitrogen Content of Lymph Nodes from Cancer and Noncancer Patients. J. C. Bateman, C. T. Klopp and A. Mendelson. —p. 777.
Distribution of Radioactivity in Tissues of Mice Receiving Triphenylbromoethylene-Br^{82}. G. H. Twombly, E. F. Schoenewaldt and D. Meisel. —p. 780.
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Rous Sarcoma in Folic Acid-Deficient Chicks: Morphology and Bioassay. E. Woll, A. C. Dornbush and P. A. Little.—p. 788.
Tracer Studies on Metabolism of Gardner Lymphosarcoma: IV. Conversion of Lactate-2-C^{14} to Alanine, Glutamate, and Aspartate by Tumor and Spleen Cells. S. Kit and D. M. Greenberg.—p. 791.
Effects of Low Temperatures on Mammary Carcinomas With and Without Mammary Tumor Milk Agent. L. W. Law.—p. 795.
Significance of Anterior Chamber in Tumor Transplantation: II. Nature of Tumor Growth Beyond Anterior Chamber. E. J. Eichwald and H. Y. Chang.—p. 811.

Delaware State Medical Journal, Wilmington

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Medical Aspects of Civilian Defense. E. F. Gliwa.—p. 264.
Nursing Participation in Delaware's Civil Defense Program. M. M. Klaes.—p. 265.
Hospital Survey and Construction Program in Delaware. C. P. Knight. —p. 266.
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Cancer Program of the State Board of Health: Report No. 5. G. F. Campana and W. H. Bandy.—p. 270.
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Stream Morbidity Report. A. J. Kaplovsky.—p. 273.
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Program of the Division of Crippled Children's Services. J. Sabloff. —p. 276.

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Impressions After 33 Years in Medical Practice. C. E. Wagner.—p. 295.
Surgical Treatment of Ulcerative Colitis. L. K. Ferguson.—p. 297.
Gallstone Ileus: Observations Based on Three Recent Cases. J. C. Pierson and E. A. Mekanik.—p. 304.
Bronchial Adenoma. J. W. Abbiss.—p. 308.
Pelvic Evisceration with Construction of New Bladder in One Stage: Case Report. H. S. Rafal.—p. 310.
Nodular Goiter with Bilateral Malignant Adenomata in a 19-Year-Old Male. E. A. Mekanik and D. A. Baltz.—p. 314.

Georgia Medical Association Journal, Atlanta

40:405-442 (Oct.) 1951

*Culdoscopy, a Versatile Diagnostic Aid. J. H. Ridley.—p. 410.
Incidence of Carcinoma in Nodular Thyroids in Southwest Georgia. C. H. Watt and J. C. Foushee.—p. 414.
Adrenal Cortex and Allergic Reactions. W. F. Friedewald and C. L. Laws.—p. 418.
Cortisone and Adreno-Genital Syndrome. P. L. Scardino and C. L. Prince.—p. 419.
Medical Education and Medical Care: Divergence of Opinion of Medical Faculties and Practitioners. R. H. Wood.—p. 422.

Culdoscopy.—Culdoscopy is one of the more recent forms of endoscopy; its predecessor was peritoneoscopy, which was used fairly successfully for intra-abdominal visualization, but for pelvic inspection the peritoneoscope had only limited value. The chief difference between the peritoneoscope and the culdoscope is that the former is introduced through an incision in the anterior abdominal wall, while the latter is passed into the cul-de-sac through a trochar puncture in the posterior vaginal fornix. Illustrated descriptions are given of the culdoscope apparatus and of the procedure of culdoscopy. The patient is anesthetized, catheterized, and examined in the dorsolithotomy position to see if there is any physical contraindication to the cul-de-sac puncture, such as an adherent mass or extensive adhesions, and to detect additional pathologic conditions that may contraindicate culdoscopy and indicate immediate laparotomy. A table lists the 38 culdoscopic examinations done over the period of 27 months at an Atlanta hospital. In 21 of the patients culdoscopy was done for suspected ectopic pregnancy. It permitted verification of this diagnosis in 8 of these 21 cases, and this diagnosis was ruled out in the remaining 13 cases, thus demonstrating the value of the culdoscope in avoiding a major surgical procedure for diagnostic purposes. Ovarian enlargements of borderline size were inspected in five cases. In four of these the enlargements were found to be due to follicular cysts, obviating the need for immediate surgery, because so frequently these cysts shrink in size. The appearance of the other ovarian tumor on culdoscopy suggested a dermoid cyst. This was substantiated by laparotomy. Suspected tuberculous peritonitis in a 13-year-old girl was proven by culdoscopy; she was given dihydrostreptomycin. The culdoscope proved to be of value in studies on the cause of sterility in six patients. Culdoscopy caused no accidents. All patients who did not require laparotomy were allowed to go home the following day. Culdoscopy is a safe and simple procedure, and, in the great majority of cases, it gives the desired information.

Hawaii Medical Journal, Honolulu

11:1-62 (Sept.-Oct.) 1951

Evaluation of Zinc Sulfate Turbidity Test in Hepatobiliary Disease. E. K. Anderson and W. H. Civin.—p. 17.
Antidotes for Destruction. F. J. Halford.—p. 19.
Incidence of Dental Caries Among School Children in Hawaii. R. J. Fanning.—p. 22.

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Journal of Aviation Medicine, St. Paul

22:339-438 (Oct.) 1951

Where Does Space Begin? Functional Concept of Boundaries Between Atmosphere and Space. H. Strughold, H. Haber, K. Buettner and F. Haber.—p. 342.
*Gamma Radiation from Instruments in Aircraft. A. Morrison.—p. 350.
Diurnal Intensity Variation of Heavy Primaries of Cosmic Radiation and Its Consequences for Hazard to Health in Flight at Extreme Altitudes. H. J. Schaefer.—p. 351.
Requirements for Protection Against Thermal Hazards of High Speed Flight. D. Lindes.—p. 358.
Stimulus Required to Produce Motion Sickness: I. Preliminary Report Dealing with Importance of Head Movements. W. H. Johnson, R. A. Stubbs, G. F. Kelk and W. R. Franks.—p. 365.
Comparative Analysis of Airborne Acceleration Laboratory Versus Human Centrifuge. C. F. Gell.—p. 375.
Effects of Time and Temperature upon Tolerance to Positive Acceleration. E. E. Martin and J. P. Henry.—p. 382.
Radial Acceleration and Urinary Output of Supinated Man. F. R. Stauffer.—p. 391.
High Altitude Bailouts. V. Mazza.—p. 403.
Navy Program for Aircraft Escape. R. L. Christy Jr.—p. 408.
Problems of In-Flight Feeding for Fighter Pilot. W. E. Bills.—p. 418.

Gamma Radiation from Instruments in Aircraft.—Measurements were made of the gamma radiation that originates in the radium incorporated into the paint on the figures and pointers of the instruments of a "Constellation" aircraft. The instrument used was a Geiger counter radiation meter having scales of 20, 2, and 0.2 milliroentgens per hour. Measurements were made in the entrance walkway beside the engineer's station, and in the positions occupied in flight by the pilot, co-pilot, and engineer. The cosmic ray background in the cabin, well away from instrument panels, was also measured. It was found that the radiation levels are only slight percentages of those regarded as safe. As a further check, pocket ionization chambers were carried by one crew on a trans-Atlantic flight. The actual readings and the readings to be expected from the previously measured gamma radiation from the instruments agreed fairly well. The intensity of cosmic radiation, even at high altitudes, is much less than that of the gamma radiation from the luminous radium paint on the instruments and the combined effect of both is far below the point at which any concern need be felt.

Journal of Experimental Medicine, New York

94:359-454 (Nov.) 1951

Absence of Prosthetic Group in Type-Specific Polysaccharide of Pneumococcus. M. Heidelberger, C. M. MacLeod, H. Markowitz and M. M. DiLapi.—p. 359.
Electrophoretic Study of Streptococcal Proteinase and Its Precursor. T. Shedlovsky and S. D. Elliott.—p. 363.
Cytochemical Studies on Kidney: I. Role of Cell Multiplication in Normal Growth. N. B. Kurnick.—p. 373.
Studies on Endemic Pneumonia of Albino Rat: IV. Development of Rat Colony Free from Respiratory Infections. N. B. Nelson.—p. 377.
Effect of Chemical and Physical Agents on Phage Receptor of Phase II Shigella Sonnei. G. T. Barry and W. F. Goebel.—p. 387.
Studies on Psittacosis-Lymphogranuloma Group: I. Pattern of Multiplication of Meningopneumonitis Virus in Allantois of Chick Embryo. M. M. Sigel, A. J. Girardi and E. G. Allen.—p. 401.
Effect of Adrenocorticotropic Hormone on Inflammation Due to Tuberculin Hypersensitivity and Turpentine and on Circulating Antibody Levels. C. K. Osgood and C. B. Favour.—p. 415.
Dominant Role of Liver in Plasma Protein Synthesis: Direct Study of Isolated Perfused Rat Liver with Aid of Lysine-ϵ-C^{14}. L. L. Miller, G. Bly, M. L. Watson and W. F. Bale.—p. 431.

Journal of Investigative Dermatology, Baltimore

17:177-254 (Oct.) 1951

Acquired Contact Sensitivity to Chloromycetin. H. M. Robinson Jr., I. Zeligman, A. Shapiro and M. M. Cohen.—p. 205.
Prantal in Treatment of Hyperhidrosis. L. M. Nelson.—p. 207.
Eosinophilic Inclusion Bodies and Cytoplasmic Masses in Verrucae: Their Incidence in 156 Lesions Consecutively Removed. M. J. Strauss, H. Bunting and J. L. Melnick.—p. 209.
Estimation of Rate of Secretion of Sebum in Man. K. K. Jones, M. C. Spencer and S. A. Sanchez.—p. 213.
Allergic Reactivity to Simple Aliphatic Acids in Man. A. J. Weil and H. E. Rogers.—p. 227.
Studies in Sensitization to Halogenated Hydroxyquinolines and Related Compounds. W. Leifer and K. Steiner.—p. 233.
Studies on Sweating: IV. New Quantitative Method of Assaying Sweat-Delivery to Circumscribed Areas of Skin Surface. F. Herrmann, P. H. Prose and M. B. Sulzberger.—p. 241.
Preparation of Skin Powder and Skin Extracts. A. B. Lerner.—p. 251.

Journal-Lancet, Minneapolis

71:419-468 (Oct.) 1951

Surgical Treatment of Constrictive Pericarditis: Clinical and Experimental Observations. E. Holman.—p. 420.
Major Cardiac Arrhythmias of Apparent Psychogenic Origin Observed in Young Adults. J. R. Fox and C. A. McKinley.—p. 425.
*Vena Cava Ligation in Thromboembolic Disease. F. M. Owens Jr.—p. 435.
Multiple Chest Leads in Clinical Electrocardiography. R. Berman.—p. 439.
Massive Thrombus of Left Auricle: Case Report. J. F. Briggs and J. Bellomo.—p. 443.
Physiological Tests in Cardiovascular Pulmonary Disease. R. J. Bing and D. Carroll.—p. 444.
Comparative Susceptibility to Endocarditis and Glomerulonephritis in Dogs With and Without Arteriovenous Shunts. J. R. R. Bobb, J. D. M. Wargo and M. B. Visscher.—p. 455.

Vena Cava Ligation in Thromboembolic Disease.—Considerable enthusiasm has developed for vein ligation in prevention of pulmonary embolism in patients with thrombophlebitis. Initially ligation of the superficial femoral vein was done, then as the procedure was found to afford incomplete protection, common femoral ligation or external iliac ligation was carried out. Now it is found that ligation of the inferior vena cava affords complete protection against embolization from the legs and pelvis. Owens says that at his hospital phlebothrombosis and thrombophlebitis are usually treated with anticoagulants, but in selected instances vena cava ligation is used. The following are regarded as indications for vena cava ligation: (1) repeated embolism in patients who cannot be maintained on anticoagulants; (2) embolization in patients requiring further surgery; (3) septic embolization. Vena cava ligation is done through a transverse right abdominal incision using a retroperitoneal approach as for lumbar sympathectomy. The cava is freed from the aorta and lumbar vertebras and doubly ligated with cotton. Ligation is done just above the iliac vein junction. Within 12 hours after operation anticoagulants are administered to prevent thrombotic obliteration of the collateral venous channels. In the immediate postoperative period the patient's legs are elevated and wrapped to the groin with an elastic bandage. After a week the legs are allowed to dangle and in 10 days the patient may begin to walk. The authors employed this method of vena cava ligation in 11 patients, and no embolization has occurred after this operation. Two of these patients had previously had pulmonary emboli following ligation of leg veins. There has been no operative mortality, and all patients are alive at present. It is felt that fatal pulmonary emboli have been prevented in these persons by vena cava ligation. Sequelae were mild and resulted not from cava ligation but from the thrombophlebitis of the veins. The procedure has definite value in treatment of thromboembolic disease.

Journal of the Mount Sinai Hospital, New York

18:141-194 (Sept.-Oct.) 1951

Cardiac Resuscitation. J. Johnson and C. K. Kirby.—p. 141.
Correlation of Spatial Vectorcardiography with Intracardiac and Esophageal Leads. L. Scherlis and A. Grishman.—p. 149.
Causes of Death After Operation: Comparison Between the Last Decade and the 1920s. A. H. Aufses and H. Neuhof.—p. 166.
Vasomotor Response in Hysteria. S. R. Rosen.—p. 179.

Journal of Nervous and Mental Disease, New York

114:283-376 (Oct.) 1951

Element of Psychotherapy in Treatment of Organic Neurologic Disorders. L. Alexander.—p. 283.
Adrenergic and Cholinergic Properties of Blood: Investigation of Blood of Psychiatric Patients. J. A. Ritchie.—p. 307.
Philippe Pineal (1745-1826). His Views on Human Nature and Disease. His Medical Thought. W. Riese.—p. 313.
Herniation of Brain Through Ear with Recovery. A. S. Effron, F. Kennedy and E. Wladkowski.—p. 324.
Polyneuritis Following Cutaneous Diphtheria. J. A. Di Fiore.—p. 333.
Insulin Induced Transient Hemiplegia in Diabetes Mellitus: Electroencephalographic Studies. F. Robinson, M. P. Margules-Lavergne and J. G. Chusid.—p. 340.
*Bell's Palsy Treated with Cortisone. H. H. Rothendler.—p. 346.

Cortisone in Bell's Palsy.—The cause of Bell's palsy (peripheral seventh nerve paralysis) has never been satisfactorily determined, but it often follows exposure to cold and inclement weather and at times is associated with upper respiratory infec-

tions. An acute inflammatory reaction with congestion of the nerve and its sheath affects particularly that part of the nerve passing through the dense bony portion between the horizontal canal of the labyrinth and the stylomastoid foramen. Presumably edema of the nerve sheath so compresses the nerve fibers as to interfere with their function. The course of the paralysis is usually benign, except when injury to the nerve fibers has been prolonged so as to prevent regeneration. Since cortisone has relieved certain nonspecific congestive changes, it seemed logical to try it in treatment of Bell's palsy. In the patient whose case is presented all facial muscles on the left side were flaccid, and there was complete inability to exercise any facial motion. The left lower lid was completely everted and marked lacrimation was evident. The left corner of the mouth showed drooping with drooling of fluids. The patient was given 100 mg. of cortisone every six hours. Forty-eight hours later the patient volunteered the information that she was regaining control of her facial muscles. She showed less lacrimation and less drooling. The following day there was further improvement. On the fifth and sixth days the dosage of cortisone was decreased to 100 mg. every eight hours. Improvement was noted daily and on the seventh day muscular control was completely recovered. The dosage of cortisone was decreased to 100 mg. daily and continued for six days thereafter. She was discharged on the 13th day with no evidence of residual paralysis. It is hoped that this report will stimulate others to use cortisone in Bell's palsy, so that its true value in this condition can be learned.

Journal of Urology, Baltimore

66:477-618 (Oct.) 1951. **Partial Index**

Adrenal Cortical Carcinoma in Children. R. A. Garrett.—p. 477.
Surgical Conservation of Renal Parenchyma. R. B. Roth, E. Hess and A. F. Kaminsky.—p. 489.
Renal Roentgenoscopy and Roentgenography During Surgery. R. J. Prentiss and R. B. Mullenix.—p. 495.
Surgical Resection of Tuberculous Kidney. J. R. Rinker.—p. 498.
*Total Infarction of Kidneys from Bilateral Arterial Emboli. T. F. Kaiser and R. R. Ross.—p. 500.
Renal Hamartoma. C. A. Hulse and E. E. Palik.—p. 506.
Thrombin in Treatment of Hematuria of Renal Origin. E. O. Nay and R. R. Brown.—p. 516.
Attainment of Equilibrium Between Plasma and Urine, with Reference to Measurement of Renal Clearances. A. J. Michie and C. R. Michie.—p. 518.
*Dissolution of Urinary Calculi: Experiments with Ethylene Diamine Tetra-Acetic Acid With and Without "Wetting Agent." H. I. Suby, F. Albright, J. Wayne and E. Dempsey.—p. 527.
Unusual Renal Tumors. T. D. Moore.—p. 533.
Simultaneous Wilms Tumors in Identical Twins. E. Gaulin.—p. 547.
Squamous Cell Carcinoma of Renal Pelvis. O. J. Oberkircher, W. J. Staubitz and M. S. Blick.—p. 551.
Ureteral Implantation of Renal Adenocarcinoma. R. D. Howell.—p. 561.
*Evaluation of Ureterosigmoid Anastomosis by Mucosa-to-Mucosa Method After Two and One-Half Years' Experience. J. J. Cordonnier and W. J. Lage.—p. 565.
Strangulated Internal Hernia as Complication of Uretero-Intestinal Anastomosis. T. H. Sweetser.—p. 571.
Vesicovaginal Fistula from Standpoint of the Urologist. V. J. O'Conor and J. K. Sokol.—p. 579.
Operation for Cure of Urinary Incontinence in the Male. C. J. Cooney and G. R. Horton.—p. 586.
Adenomatoid Tumor of Epididymis. D. Falk and B. E. Konwaler.—p. 603.
Logic of Antimicrobial Therapy. R. D. Herrold.—p. 612.

Total Infarction of Kidneys.—Total infarction of the kidneys from bilateral arterial emboli is rare and the anuria accompanying it may be puzzling to the clinician, but Kaiser and Ross feel that the urologist should be aware of this obscure entity. Bilateral total infarction does not always occur simultaneously. Total infarction of one kidney may precede that of the other by a considerable length of time. Unilateral total infarction in a noninfected kidney results in aseptic autonephrectomy. The kidney contracts and on retrograde pyelogram is similar to a chronic atrophic pyelonephritic or hypoplastic kidney. The pain associated with total infarction is not always severe and is sometimes more abdominal than flank in location. The anuria associated with total bilateral renal arterial infarction, especially in those cases without the typical excruciating flank pain, must be differentiated from anuria due to other causes. An adequate and detailed history is most helpful, and associated cardiac disease suggests infarction. Excretion tests and excretory urograms are valueless. In the absence of antecedent renal diseases a retrograde pyelogram will reveal no abnormalities in the acute phase. Total infarction of long duration produces contracture of the kidney, renal pelvis, and calices. In the presence of acute total infarction, reddish fluid may be obtained on catheterization of the bladder or renal pelvis. This paradoxical finding represents hemoglobin laden fluid liberated by autolysis from the infarcted area. Bilateral total infarction accounts for only a small percentage of the cases of anuria resulting from infarction. Most patients with renal infarction who are dying in anuria show multiple bilateral old and recent small infarcts. If hypertension occurs after total unilateral infarction, it is probably temporary. Complete occlusion of both renal arteries may cause hypertension that persists until death.

Dissolution of Urinary Calculi.—Previous studies demonstrated that solution G, a citric acid solution containing magnesium, with a pH of 4.0, readily dissolves certain urinary calculi in which calcium is an important ingredient, except calcium oxalate stones. At the same time that solution G was investigated, experimental work was carried out with "calgon," a water softener, which likewise proved a good solvent of calcium-containing calculi and even caused slow dissolution of calcium oxalate stones. However, the water softener ("calgon") produced severe irritation in the bladder of rabbits. Recently Suby and associates experimented with another water softener, ethylene diamine tetra-acetic acid ("sequestrine"). This softener removes from a solution not only calcium ions but also other cations. This softener was used in solutions of 1%, 2%, and 3%. Previous studies having demonstrated that the ability of a solution to demineralize rabbit teeth grossly parallels its ability to dissolve calcium phosphate stones, each of the above solutions was tested on rabbit teeth. There was increasing demineralization of the teeth with increasing concentrations of "sequestrine." The solutions of "sequestrine" were then used as irrigating solutions in the bladders of rabbits. Considerable irritation resulted, albeit less than with calgon. The efficiency of water softeners can often be increased by "wetting agents." The wetting agent "tween 80," which is polyoxyethylene (20) sorbitan mono-oleate, was used with solutions of the water softener. Despite the rather negative results obtained with the wetting agent, the authors feel that further work with combinations of dissolving solutions and wetting agents is indicated. In addition to studies on rabbit teeth and bladders, the authors present the results of in vitro studies on the effect of "sequestrine" on oxalate and uric acid stones. This water softener did dissolve calcium oxalate stones faster than solution G. The rate of dissolution, however, is much slower than in the case of calcium phosphate stones. It was noted also that "sequestrine" does slowly dissolve uric acid stones, but the same results were obtained with a water solution of phosphate at a pH of 7.0.

Ureterosigmoid Anastomosis.—Cordonnier and Lage had two and a half years' experience with ureterosigmoid anastomosis by the mucosa-to-mucosa method on a total of 54 patients. They are aware that the interval is too short to evaluate the results of cancer surgery, but believe that certain conclusions can be drawn concerning late results of ureterosigmoid anastomosis. Forty patients had bilateral ureterosigmoid anastomosis and cystectomy in one stage. Five had two-stage procedures, and in nine cases ureterosigmoid anatomosis alone was done. The authors believe that the cystectomy is much easier to perform at the time of ureterosigmoid anastomosis, and that the one-stage operation does not increase the operative risk any more than a second stage cystectomy would. There was not a single surgical fatality in the 54 patients, and 33 are still living. Of the 15 patients who were operated on more than two years ago, 8, or more than half, are still living and in comparatively good health. The average survival of the patients who died was 11.1 months. Antibiotics were administered during the immediate postoperative period, and only one patient had signs of early sepsis. Of a total of 48 cases in which an accurate follow-up was obtained, 27 patients had no chills, fever, or other evidence of urinary

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sepsis; the other 21 had late sepsis of varying severity. The presence of air in the kidney pelvis, demonstrated roentgenographically, following direct anastomosis has been mentioned as an objection to this method, but the authors feel that this is not justified. Up to as long as two years postoperatively there was air in the kidney pelvis in only five kidneys. With one exception, this occurred in kidneys that were not functioning preoperatively. These patients had few symptoms, and sepsis was not a serious problem. The results of early and late postoperative excretory urography compare favorably with reports of excretory urograms when other methods were used. The late developments of acidosis in patients who have had ureterosigmoid anastomosis is a problem, but is well controlled when recognized. The establishment of a rectal pouch with a permanent colostomy may eventually prove to be the solution for this problem.

Michigan State Medical Society Journal, Lansing

50:1189-1192 (Oct.) 1951

Cysts and Fistulas of Mouth, Head and Neck. J. M. Robb.—p. 1125.
Geriatric Philosophy. F. C. Swartz.—p. 1128.
Surgical Lesions of Upper Abdomen in the Newborn and Infant. C. D. Benson.—p. 1131.
Chronic Ulcerative Colitis in Veterans. H. J. Kullman and P. E. Schmitt. —p. 1133.
Pleural Fluid. G. T. McKean.—p. 1137.
Anesthesia in Chest Surgery. W. K. Wilner Jr.—p. 1141.
Exophthalmos. A. D. Ruedemann.—p. 1143.
Why the Necessity for Iodized Table Salt. J. L. Giles.—p. 1145.
Application of Venereal Disease Control in General Health Program of the Michigan State Medical Society: Historical Resume. R. S. Breakey. —p. 1147.
Americanism and Moral Integrity. R. M. Klemme.—p. 1149.

Minnesota Medicine, St. Paul

34:933-1044 (Oct.) 1951

Hypertrophic Pyloric Stenosis. H. F. Flanagan.—p. 957.
Avascular Necrosis: Report of Cases Involving Distal End of Clavicle and Odontoid Process. E. T. Evans.—p. 970.
Pulmonary Tuberculosis and Carcinoma. G. A. Hedberg, G. G. Graham and W. H. Wierman.—p. 972.
Cytologic Diagnosis of Uterine Malignancies. A. H. Wells.—p. 975.
Accidental Deaths in Minnesota in 1950. A. B. Rosenfield and A. J. Chesley.—p. 983.
Use of Wangensteen Suction in Surgery. A. Ochsner.—p. 991.
Procaine Amide in Treatment of Ventricular Tachycardia. A. Döscherholmen.—p. 992.

New England Journal of Medicine, Boston

245:591-628 (Oct. 18) 1951

Present Concepts Concerning Surgical Management of Duodenal Ulcer. A. W. Allen.—p. 591.
A Community Heart Program: Report of Three Years' Experience. E. E. Kattwinkel, V. A. Getting, E. M. Morris and W. J. Zukel.—p. 595.
Common Pitfalls in X-Ray Diagnosis of Tuberculosis. J. D. Wassersug. —p. 598.
Surgical Treatment of Lymph-Node Metastases. G. W. Taylor.—p. 608.

New Jersey Medical Society Journal, Trenton

48:445-492 (Oct.) 1951

*Occupational and Industrial Dermatoses: Statistical and Analytic Survey of 3042 Cases. B. M. James and J. Bleiberg.—p. 448.
Cancer Diagnostic Services in New Jersey. W. G. Bernhard, A. J. Casselman and E. L. Shaffer.—p. 454.
Psychosurgery. A. Crandell and E. Kessler.—p. 456.
Paroxysmal Arrhythmias in Case of Diffuse Toxic Goiter. S. Rainone. —p. 459.
Treatment of Functional Aspect of Skin Diseases. R. Yontef.—p. 462.
Renal Rickets. W. H. Seward.—p. 464.
Aspirated Arachidic Foreign Body in Bronchus with Obstructive Emphysema in a Child Two Years of Age. G. A. Bradasch and L. Sciarrillo. —p. 467.
ACTH and Cortisone in Allergic Diseases. W. B. Sherman.—p. 470.
Diagnosis of Intestinal Neoplasms. L. J. Boyd, W. L. Mersheimer and E. J. Nightingale.—p. 474.

Occupational Dermatoses.—James and Bleiberg analyzed the records of 3,042 patients with dermatoses alleged to be the results of occupational contacts. The diagnosis was made on the basis of the history and physical examination, but patch tests were used when necessary, and, in many cases, visits to the place of employment were made, or the manufacturer of the offending substances was asked for further information. When occupational etiology was not quite certain, the patient was usually given the benefit of the doubt. However, the authors saw cases of scabies, erythema multiforme, lichen planus, secondary syphilis, lichen chronicus circumscriptus, pityriasis rosea, erythrasma, arsenical keratoses, balanitis diabeticorum, and Boeck's sarcoid being treated as "ocupational." The patients with skin lesions of real occupational origin were classified into nine different etiologic groups. The authors mention among others dermatitis involving entire gangs of longshoremen who had been unloading drums of cashew nut oil, and the increased frequency with which pharmaceutical workers, doctors, dentists, and nurses are becoming sensitized to antibiotics. Trauma from glass wool used in insulation caused many cases of pruritus, as well as foreign body abscesses and furunculosis. Wet work caused lesions, particularly in patients with histories of atopic reactions. The dermatoses caused by petroleum products and solvents were simple erythema, vesicular bullous eruption, eczematous dermatitis, generalized exfoliative dermatitis, comedones, acne, follicular infections, abscesses, keratoses, epitheliomas, melanoses, depigmentations, multiple sebaceous cysts, atrophy, and telangiectasia. An increasing number of workers are being exposed to radiation hazards. The occupational infections observed included tuberculosis, yeast infections, tinea profunda, Madura foot, anthrax, erysipeloid, and brucellosis. Secondary infections were produced by a wide variety of organisms and were usually superimposed on traumatized areas of skin. Occupational dermatoses are frequently superimposed on preexisting skin diseases, and such cases often lead to litigation. Preemployment examinations should if possible screen out persons with dermatoses likely to become aggravated by contact with certain substances. Cleanliness of environment lessens industrial exposure. Many cases of severe dermatitis resulted from over-treatment or from treating minor abrasions with sensitizers. Antibiotic ointments (penicillin) and chemotherapeutic ointments (sulfonamides) frequently increased the period of disability.

New York State Journal of Medicine, New York

51:2295-2438 (Oct. 15) 1951

*Modern Management of Alcoholism. K. Goldstein and R. S. Kidder. —p. 2347.
General Medical Care of Diabetic. E. W. Gates.—p. 2353.
Use of ACTH and Cortisone in Certain Medical Diseases. B. M. Norcross.—p. 2356.
Recent Advances in Treatment of Bronchial Asthma. C. E. Arbesman. —p. 2361.
Neuropsychiatric Disorders of Aged. I. J. Sands.—p. 2370.
New Developments in Care of Aged Mentally Ill. O. K. Diamond. —p. 2375.
Response of Human Urinary Bladder to Certain Pharmacologic Agents. E. W. Corradini.—p. 2379.
Method of Rapid Restoration of Neuromuscular Function in Poliomyelitis. A. W. Schenker.—p. 2383.
Ascorbic Acid in Treatment of Burns. D. H. Klasson.—p. 2388.
Experiences in Treatment of Rheumatoid Arthritis with Cortisone. S. Davison.—p. 2393.
Indiscriminate Transfusion: Critique of Case Reports Illustrating Hypersensitivity Reactions. R. D. Barnard.—p. 2399.
Medical Problems in Diabetic Surgery. H. A. Cochrane and L. Gross. —p. 2403.
New Vasodilating Agent. J. R. Murphy.—p. 2407.
Newer Concepts on Surgical Management of Megacolon. F. D. Conole. —p. 2409.
ACTH and Cortisone in Ophthalmologic Practice. F. P. Koch.—p. 2411.

Modern Management of Alcoholism.—This paper is a report on experience with approximately 400 alcoholics between the ages of 19 and 75 at the University of Buffalo clinic for the rehabilitation of alcoholics. On the basis of this experience the authors recomend the following procedure for the treatment of the alcoholic in private practice: (1) evaluation of motivation for help; (2) medical, sociologic, and brief psychiatric history; (3) physical examination and indicated laboratory work; and (4) therapy to include treatment of physical abnormalities, education of the alcoholic regarding his problem including referral to Alcoholics Anonymous, and psychotherapy. In regard to the new methods of treatments with tetraethylthiuramdisulfide (antabuse®) and adrenocortical extract that were given a therapeutic trial in 25 and 13 patients respectively, antabuse® re-

quires specialized medical and psychiatric investigation of the alcoholic, hospitalization, and even when used under ideal circumstances is not without danger. At least for the present, antabuse* should be regarded as an adjunct to therapy in selected cases and should be used only by physicians familiar with the drug. Adrenal cortical extract has been of greatest benefit in treatment of the acute phase and prevention of delirium tremens. Its usefulness in the interval phase remains to be evaluated. Much more investigative work is necessary regarding subclinical hypopituitarism or hypoadrenocorticism as a factor in causing and perpetuating alcoholism. Low urinary 17-ketosteroid levels must be evaluated individually on the basis of sex and nutrition. The eosinophil response to corticotropin (ACTH) would have to be determined in each person showing an abnormal eosinophil response to epinephrine. Furthermore, one can only wonder about the role of poor nutrition, especially depleted vitamin C content of the adrenals, in producing a poor response in eosinophil tests. Lastly, each person would have to be evaluated as to the phase of shock, countershock, and exhaustion as outlined by Selye, and persons who respond poorly should be retested at intervals.

Pediatrics, Springfield, Ill.

8:455-602 (Oct.) 1951

*Protein and Amino Acid Requirements of Infants. A. A. Albanese. —p. 455.
Intracranial Complications of Congenital Dermal Sinuses. D. D. Matson and F. D. Ingraham.—p. 463.
*Effect of Carotid-Jugular-Anastomosis Operation upon Intelligence. J. W. Kessler.—p. 475.
Pseudomonas Aeruginosa Infection as Complication of Therapy in Pancreatic Fibrosis (Mucoviscidosis). S. D. Garrard, J. B. Richmond and M. M. Hirsch.—p. 482.
Isolated Cervical Lymphogranuloma Venereum in Child. D. Roth and R. Schulick.—p. 489.
Some Observations on Facial Paresis in Newborn Infant: Etiology and Incidence. W. R. Hepner Jr.—p. 494.
Middlebrook-Dubos Hemagglutination Reaction: Study of Test in Children. H. W. Anderson and R. V. Platou.—p. 498.
Clinical Survey of Vascular Complications in "Juvenile Diabetes Mellitus." H. G. Grayzel and H. B. Warshall.—p. 506.
Studies on Prematurity: IV. Influence of Fetal Maturity on Weight Lag Period. M. Steiner and W. Pomerance.—p. 513.
Method of Obtaining Anaerobic Arterial Blood Samples from Infants. F. E. Hytten and R. B. Cherry.—p. 518.
Fibrous Sternomastoid Tumor of Infancy. J. Gruhn and E. S. Hurwitt. —p. 522.
Production of Congenital Defects in Offspring of Pregnant Mice Treated with Cortisone: Progress Report. F. C. Fraser and T. D. Fainstat. —p. 527.
Pseudocyst of Pancreas in Childhood. J. Mithoefer.—p. 534.
Congenital Megacolon (Hirschsprung's Disease): Follow-up on 82 Patients Treated Surgically. O. Swenson.—p. 542.
Clinical Observations on Trichocephalus Trichiurus (Whipworm) Infestation in Children. R. C. Jung and P. C. Beaver.—p. 548.

Protein and Amino Acid Needs of Infants.—Protein provides the child with the basic building material for growth. In this country, human or cow's milk is the principal protein-containing food of early infancy. The average protein content of human milk is 1.25%; that of cow's milk, 3.5%. Since the proteins of both milks contain abundant and comparable amounts of all the amino acids essential for growth, the protein needs for growth are automatically met by providing sufficient milk of either variety. The author stresses, however, that unsupplemented breast feeding of infants beyond the third month is nutritionally inadequate. For evidence to support this claim, he cites studies carried out on Chinese children, who are for the most part breast-fed. Nutritional inadequacy of unsupplemented breast feeding of infants beyond the third month of life arises primarily from quantitative rather than qualitative limitations of certain amino acids. On the basis of amino acid composition data and the biologic value of a number of proteins tested in infants, it appears that to overcome the defects of this feeding practice that still prevails in large areas of the world the necessary diet supplements should be derived principally from animal protein sources, milk and meat, rather than cereal proteins. The cereal proteins, wheat and corn gluten, appear to be unsatisfactory supplemental foods because of their lysine deficiency. The tryptophane deficiency of corn proteins is not critical since the tryptophane needs of the infants are provided in the mother's milk. However, the poor absorbability of corn gluten, possibly due to an amino acid imbalance, does not recommend the use of corn products. The efficacy of soybean flour as an infant food supplement has been amply demonstrated, and where there is lack of animal proteins for infant feeding, soybean milk may be employed to advantage.

Carotid-Jugular Anastomosis and Intelligence.—The carotid-jugular anastomosis operation was designed to increase the cerebral circulation in the hope of improving the mental abilities of retarded children as well as procuring other beneficial effects in children and adults suffering from such physical disabilities as convulsive disorders and sensory-motor impairment. The 33 cases reported in this study all concerned children who had had standard psychometric tests before and after surgical treatment. On the basis of the data reported in this paper, the earlier assertion by other authors "that this procedure represents the first successful attempt at correction of mental retardation on an organic basis" is not fulfilled. The improvement in two cases presented in the first published report by these authors has not been sustained by later study. The statement that children with intelligence quotients between 40 and 60 show the greatest improvement is contradicted by the present author's findings. There is virtually no evidence in this study (significant improvement in 1 case out of 33) for crediting the carotid-jugular anastomosis with improvement of the intellect. The majority of the patients in these cases were tested several months after surgery so that whatever improvement was going to occur should have been manifest, according to the statement of McKhann, Belnap, and Beck that "improvement usually begins to appear in the retarded children within the first two postoperative months."

Psychoanalytic Review, Albany, N. Y.

38:305-406 (Oct.) 1951. **Partial Index**

Types of Activity in Psychoanalytic Technique. G. Frumkes.—p. 305.
Agoraphobia as Manifestation of Schizophrenia: Analysis of Case. W. Schmideberg.—p. 343.
Contribution to Psychoanalytical Study of Projection and Introjection. J. Flescher.—p. 353.

Public Health Reports, Washington, D. C.

66:1263-1302 (Oct. 5) 1951

Body Mechanisms in Progressive Tuberculosis. H. M. Payne.—p. 1263.
Nursing in Tuberculosis Hospitals. M. B. Naylor.—p. 1272.

Rocky Mountain Medical Journal, Denver

48:729-810 (Oct.) 1951

Presidential Address. H. C. Bryan.—p. 751.
Cerebral Palsy: Spasticity. W. L. Minear.—p. 757.
Irreducible Minimum in Maternal Mortality. P. D. Bruns.—p. 767.
Echinococcus Disease: Report of Four Cases Contracted in the United States. J. H. Carlquist and R. J. Dowell.—p. 773.
Spina Bifida. W. E. Reckling.—p. 776.

Southwestern Medicine, El Paso, Texas

32:325-360 (Oct.) 1951

Management of Acute Cholecystitis. L. Goldman.—p. 341.
Hazards of Delay in Gallbladder Surgery. R. S. Sparkman.—p. 344.

32:361-396 (Nov.) 1951

Surgery in Pulmonary Disease. J. W. Gale.—p. 372.
Nonpenetrating Injuries of Abdomen. C. J. Miangolarra and C. C. Craighead.—p. 379.

Virginia Medical Monthly, Richmond

78:581-634 (Nov.) 1951

Brief History of Medical Society of Virginia and Its Functions. C. L. Harrell.—p. 584.
The "L. E. Cell"—Phenomenon of Diagnostic Value in Acute Disseminated Lupus Erythematosus. J. E. Stevens, J. F. Wine, A. Pepple and M. E. Rader.—p. 590.
Evaluation of Epilepsy Program in Virginia. J. E. Barrett, J. B. Funkhouser, D. L. Harrell and others.—p. 598.
Endometrial Hyperplasia in Elderly Women with Hepatic Cirrhosis. F. L. Apperly.—p. 602.
Laboratory Aids in Diagnosis of Bone Lesions. E. B. Carpenter and J. T. Tucker.—p. 603.

FOREIGN

Acta Chirurgica Scandinavica, Stockholm

102:87-166 (Oct. 6) 1951. **Partial Index**

Fractures of Upper Thoracic and Cervical Vertebral Bodies. O. Olsson. —p. 87.
Mechanism of Cervical Radicular Lesions Resulting from Friction or Forceful Traction. R. Frykholm.—p. 93.
Extradural Hematomas: Survey of Cases Covering 20-Year Period with Special Reference to Diagnosis. H. Brodin.—p. 99.
Spinal Anesthesia and Hypotension Headache. K. Boman.—p. 110.
*Streptomycin in Surgical Treatment of Bone and Joint Tuberculosis. S. Orell.—p. 113.
*Comparison Between Clinical Results and Bacterial Sensitivity Tests in Treatment of Urinary-Tract Infections with Chemotherapy. G. Giertz and B. Gullbring.—p. 121.
Lateral Aberrant Thyroid Cancer. A. Olsen.—p. 128.
Ultimate Results After Transurethral Prostatic Resection. H. Sommerfeldt.—p. 135.
Prognosis and Treatment of Congenital Atresia of Esophagus. M. Sulamaa, L. Gripenberg and E. K. Ahvenainen.—p. 141.

Streptomycin in Bone and Joint Tuberculosis.—At the St. George Hospital in Stockholm 250 patients, 31 with spondylitis, 14 with trochanteritis, and 205 with joint tuberculosis, were given surgical treatment combined with chemotherapy. The lesions were excised under a protecting "umbrella" of streptomycin and penicillin applied as dry powder (1 to 3 gm. of streptomycin and 200,000 to 600,000 units of penicillin) to the wound. The antibiotics were also administered intramuscularly and in combination with *p*-aminosalicylic acid by mouth according to the following schedule: treatment began and ended with the oral administration of *p*-aminosalicylic acid in daily doses of 10 to 14 gm. For 14 days, starting 3 days before the surgical intervention, 1 gm. of streptomycin divided in two doses, and penicillin (500,000 units divided in two doses or 300,000 units of procaine penicillin in one dose) were given daily by intramuscular route. Administration of *p*-aminosalicylic acid was reduced or completely discontinued during this period. The maximum follow-up period has been only two years, which is too short to permit definite evaluation of the results. Primary healing was obtained in all instances. Sinus formation and prolonged suppuration did not occur, and tuberculosis did not recur, even after surgical intervention in early stages of the disease. Radical surgery seems to be effective when streptomycin and penicillin in powder form are applied locally to the wound. Results obtained suggest that by treating sinuses, bone lesions, and joint capsules (synovectomy) by the author's method, it will probably be possible to shorten the duration of treatment and to prevent functional disturbances as well as relapses.

Chemotherapy in Urinary Tract Infections.—Clinical results were compared with results of bacterial sensitivity tests in vitro in 200 patients with urinary tract infections treated with sulfonamide compounds, penicillin, and streptomycin. Sulfamethazine was given in doses of 1 gm. or 0.5 gm. five times daily, penicillin in doses of 400,000 units daily, and dihydrostreptomycin in doses of 1 to 2 gm. daily. Bacteriological examination of the urine was carried out before and after the treatment, and as a rule at least once weekly during prolonged treatment. Bacteria that had shown sensitivity in vitro to 20 mg. of sulfamethazine per 100 ml. of culture medium, to 16 units of penicillin, and to 125 γ of streptomycin per milliliter of medium disappeared from the urine in most of the patients after administration of the respective drugs. Bacteria that were resistant in vitro to 80 mg. of sulfamethazine per 100 ml. of culture medium, to 64 units of penicillin, or to 500 γ of streptomycin per milliliter as a rule persisted in the urine of patients given chemotherapy. Of the 108 bacterial strains that were sensitive in vitro, all but 7 disappeared from the urine during chemotherapy. Of the 180 strains that were resistant in vitro, only 8 responded to chemotherapy. Discrepancy between clinical results and those of in vitro sensitivity tests thus was observed in 5% of the clinical material. Bacteria sensitive to 80 mg. of sulfamethazine per 100 ml. of culture medium to 64 units of penicillin or to 500 γ of streptomycin per milliliter of medium formed an intermediate group. In infections due to these bacteria, chemotherapy yielded good clinical results in some instances, but was ineffective in others.

Bol. Soc. Chilena Obst. y Ginec., Santiago

16:129-154 (Aug.) 1951. **Partial Index**

*Placenta Accreta. H. Cabrera, J. Claramunt and E. Peña.—p. 129.

Placenta Accreta.—In 86,983 deliveries at a maternity hospital in Chile during the last six years, 12 cases of placenta accreta were observed, a frequency of 1 case per 7,248 deliveries. Seven of these women delivered at full term, and five delivered after 6½ to 8½ months of pregnancy. Ten women had had one or more abortions, eight one or more uterine curettages, five retention and manual extraction of the placenta in one or more previous deliveries, one a cesarean section, two endometritis, and two cured syphilis. Placenta accreta is diagnosed during the third stage of labor when there is difficulty in spontaneous elimination of the placenta, acute uterine hemorrhage, and no response to attempts at manual extraction of placenta and to the administration of posterior pituitary injection. In two of the reported cases the placenta accreta was total, in six it was partial with placenta praevia and uterine bleeding since pregnancy, and in four it was partial without bleeding during pregnancy. Uterine bleeding during the third stage of labor was acute in all cases. In seven patients the treatment consisted of manual extraction of the placenta and instrumental cleaning of the uterus. One of the patients died from blood loss two hours after extraction of the placenta. Hysterectomy was performed in the remaining five cases, with two deaths occurring from hemorrhage. Supplemental treatment in all cases consisted of administration of oxytocic drugs, dextrose solution, blood transfusions, and drugs for control of general infection. Manual or instrumental extraction of the placenta is indicated when there are neither complications nor previous uterine bleeding of long duration, but hysterectomy is indicated in cases complicated by placenta praevia, bleeding since pregnancy, and the failure of manual or instrumental vaginal procedures.

British Medical Journal, London

2:921-986 (Oct. 20) 1951

The Spread of Influenza: Evidence from 1950-1951. A. Isaacs and C. H. Andrews.—p. 921.
Relation of Adrenal Cortical Function to Scurvy in Guinea-Pigs: Preliminary Experiments. B. E. Clayton and F. T. G. Prunty.—p. 927.
Preparation of Clean Chemical Solutions with Special Reference to Radioactive Phosphorus Solutions for Clinical Use. G. E. Harrison and W. H. A. Raymond.—p. 930.
Some Autoradiographic Studies of Non-Uniform Distribution of Radioactive Phosphorus in Tissues. L. F. Lamerton and E. B. Harriss. —p. 932.
Chromaffin Tumor with Chronic Hypertension. G. Lumb.—p. 936.
Treatment of Chronic Otorrhoea with Chloramphenicol. R. S. Lewis and J. D. Gray.—p. 939.
Pethidine and General Anaesthesia. M. Johnstone.—p. 943.
Uric-Acid Levels in Blood and Plasma. H. E. Archer and E. Rhoden. —p. 947.
Epidemic of Bornholm Disease: Preliminary Report. J. B. M. Davies and J. F. Warin.—p. 948.

Uneven Distribution of Radioactive Phosphorus in Tissues.—For the estimation of the radiation received by tissues after the administration of radioactive isotopes, it is generally assumed that there is a uniform or continuous distribution of isotope within a partciular tissue. It was found, however, that autoradiographs of sections of rat liver and spleen following intravenous injection of P^{32} (as Na_2HPO_4) in isotonic sodium chloride solution had a very "spotty" appearance, indicating uneven distribution. After intraperitoneal injection the isotope was distributed reasonably uniformly. The authors describe the preparation of tissues for autoradiography and the making of contact and stripping film autoradiographs. They also found at autopsy nonuniform distribution of radioactivity in the liver, spleen, and tumor tissue of a patient with metastatic sarcoma who had received intravenous injections of P^{32} 17 days before death. The radioactivity of these tissues, as determined by a liquid counter, were as follows: liver, 0.035 μc. per gram; spleen, 0.046 μc. per gram; secondary tumor, 0.029 μc. per gram. Autoradiographs of smears of the original P^{32} solution indicated that particulate material was present that concentrated the activity. This particulate material can arise in preparation of the active solution or as a result of allowing the solution to stand in a syringe, unless special precautions have been taken. The nonuniformity of activity resulting may consid-

erably change the dosage distribution in the tissue. The authors present a calculation made with a number of simplifying assumptions to indicate how the dose will vary throughout a tissue if a beta emitter is distributed unevenly in the tissue, forming localized sources of high concentration.

2:987-1040 (Oct. 27) 1951

Metabolism of Histamine. J. H. Gaddum.—p. 987.
Some Considerations Connected with Classification and Explanation of Naevi and Naevoid Conditions. F. P. Weber.—p. 992.
*Explanation of "Primary Atypical Pneumonia" Syndrome. P. W. Robertson and K. D. F. Morle.—p. 994.
Serum Potassium Deficiency During Treatment with Sodium P.A.S. and Liquorice Extract. J. A. Strong.—p. 998.
Incidence of Bact. Coli O Group 111 in Sporadic Infantile Gastro-Enteritis. I. A. B. Cathie and J. C. W. MacFarlane.—p. 1002.
So-Called Accidental Mechanical Suffocation of Infants. D. Swinscow. —p. 1004.
Effect of Cigarette-Smoking on Blood Flow Through Hand. J. T. Shepherd.—p. 1007.
Toxaemia of Pregnancy: Some Epidemiological Relationships to Nephritis, Rheumatic Fever, and Stillbirth. T. W. Buchan.—p. 1011.

Explanation of "Primary Atypical Pneumonia."—During the past two years Robertson and Morle have observed over 500 cases of a condition that they believe to be an aspiration pneumonia, in which the lesions are sharply localized. This condition, both clinically and radiologically, is similar to primary atypical pneumonia and to many of the so-called virus pneumonias. The authors wish to dispel the mysticism associated with these conditions and to destroy the concept of atypical pneumonia as described at present. They made their observations on young men who were receiving basic military training in camps, where large numbers of young men are concentrated and new ones are taken in each week. Upper respiratory infections are common in such environments, and the pulmonary lesions described followed such infections. There was no consistent clinical picture, as the illness varied greatly in intensity and duration. A few days after the onset of an upper respiratory infection one or more signs of pulmonary disease developed, such as cough, sputum, chest pain, dyspnea, and feyer. The one constant feature of all cases was localization of the disease to bronchopulmonary segments or subsegments. Comparison of the features of "primary atypical pneumonia" with those of the cases described here reveals no significant difference. Radiologically the lesions are apparently identical and the results of laboratory investigations are essentially similar. The authors give reasons for doubting the viral origin of these pulmonary lesions, and suggest that they result from aspiration of products from an associated upper respiratory tract infection. They feel that the term and diagnosis "primary atypical pneumonia" are meaningless, as it is not a specific condition but merely represents a segmental aspiration pneumonia.

Deutsche medizinische Wochenschrift, Stuttgart

76:1325-1356 (Oct. 26) 1951. **Partial Index**

Roentgen Picture of Sella Turcica in True Hypertension and Angina Pectoris. S. Austen and K. Westphal.—p. 1329.
Hydrogenated Alkaloids of Ergot in Treatment of Disturbances in Peripheral Circulation. H. Ehren.—p. 1334.
*Is It Permissible to Continue Breast Feeding During Mastitis? H. Kirchhoff.—p. 1338.
Treatment of Diabetic Pruritus. J. Kuntze and H. Otto.—p. 1340.
*Etiology and Therapy of Goat's Milk Anemia. K. Betke and L. Gantert. —p. 1341.

Breast Feeding During Mastitis.—As a result of the high incidence of mastitis in Germany during the postwar years, Kirchhoff was able to study the fate of infants whose mothers had mastitis. Breast feeding was frequently continued after the onset of mastitis. Among the infants of women with mild forms of mastitis, 10 (or 6.6%) became ill with dyspepsia, pyodermia, or furunculosis, but there was no fatality. Of the infants of 34 women with moderately severe mastitis who continued to nurse their children, 19 became ill and 3 died. Adequate records were available for only 25 of 59 women who had severe mastitis. Of 16 infants who were breast fed during the onset of mastitis, 11 became ill and 5 of these died. On the basis of these figures the author demands that as soon as signs of mastitis appear, nursing at the diseased breast should be discontinued.

Goat's Milk Anemia.—The term goat's milk anemia should be applied only to anemia in which a megalocytic blood picture and megaloblastic transformation of the bone marrow develop during feeding with goat's milk. Iron deficiency anemias may also develop during feeding with goat's milk, as well as with cow's milk. Mixed forms of anemia are also observed, but it is advisable to apply the term goat's milk anemia only to the form that resembles pernicious anemia and represents a subdivision of the megaloblastic anemia of early childhood. The authors present the histories of two infants with this form of goat's milk anemia. Cure resulted after treatment with folic acid and vitamin B_{12}. The course of the reticulocytic crisis indicated that this anemia resulted from vitamin B_{12} deficiency as well as from folic acid deficiency. Treatment, therefore, should not only combat an existing infection and correct a dietetic deficiency but should provide both vitamin B_{12} and folic acid.

Journal of Laryngology and Otology, London

65:629-680 (Sept.) 1951

Diseases of Blood Connected with Oto-Rhino-Laryngology. L. Whitby. —p. 629.
Benign Tumours of Oesophagus. F. B. Korkis.—p. 638.
Otogenic Cerebellar Abscess and Some Infections of Posterior Fossa of Skull. E. D. D. Davis.—p. 646.
Clinical Record: Epistaxis and Sinus Infection. I. J. L. Morris.—p. 658.

Journal de Médecine de Lyon

32:875-918 (Oct. 5) 1951. **Partial Index**

*Bronchial Involvement in Tuberculosis. P. Rivollier.—p. 901.

Bronchial Involvement in Tuberculosis.—The clinical manifestations of bronchial involvement in tuberculosis are delayed; stenosis resulting from bronchial lesions may even appear after an apparent cure. Undetected partial stenosis, transformed into complete stenosis during treatment, may require removal of a lung. Early detection of stenosis and the preceding lesions can be accomplished only by systematic bronchoscopy; clinical signs, such as coughing, expectoration, hemoptysis, slight fever, dyspnea, or wheezing, are merely suggestive. Radiological signs are more numerous and precise than clinical ones, but they are not conclusive, and diagnosis must be established by bronchoscopy. During the primary stage of tuberculosis the bronchial lesions are generally due to compression or erosion by infected hilar nodes. These lesions are usually reversible. Inflammatory bronchial stenosis during a secondary tuberculous infection is also usually reversible. In the third stage, bronchial lesions are more varied. They may be classified as extramural (recurrent glandular disease, broncholithiasis); intramural (vegetations, tuberculomas); and mural (nonspecific, ulcerations, stenoses). Tuberculous bronchial ulcerations account for 50 to 55% of the specific lesions; they have irregular outlines and a granular base, and bleed readily on touch. They may be masked by a thick layer of caseous material, and Koch's bacilli are numerous. Stenoses occur in about 70% of the bronchial manifestations of tuberculosis (excluding nonspecific lesions). Stenosis begins with inflammatory infiltration and edema of the mucosa, and progresses through an ulcerostenotic stage to the cicatricial stage, in which the canal is narrowed, rigid, and lined with a thin, pale mucosa. At this stage stenosis is irreversible; the prognosis depends on its extent and location. Incomplete stenosis is compatible with normal life if the condition of the parenchyma is stabilized. Complete stenosis isolates a part of the lung, exposing it to complications such as infection, suppuration, or abscess formation. The reactions of an isolated segment or even of an entire lobe (upper right lobe and middle lobe in particular) may be amenable to treatment, but the isolation of a whole lung will lead sooner or later to resection. Tracheal stenoses are catastrophic and usually irreparable. Isolated bronchial tuberculosis apparently explains the appearance of Koch's bacilli in the sputum of patients whose lungs show no evidence of involvement. These isolated bronchial lesions are benign and very seldom result in stenosis or pulmonary involvement. Lesions of the distal bronchi, which cannot be reached by the bronchoscope, are also comparatively benign; the seriousness of those in the proximal bronchi increases with the caliber of the canal involved.

Lancet, London

2:743-794 (Oct. 27) 1951

The University and Medicine. H. P. Himsworth.—p. 743.
Potassium Lack in the Postgastrectomy Dumping Syndrome. W. H. Smith.—p. 745.
Prevention of Seasickness with Hyoscine, Benadryl, and Phenergan. E. M. Glaser and G. R. Hervey.—p. 749.
Panniculitis. D. M. Baker.—p. 753.
*Treatment of Lupus Erythematosus with Mepacrine. F. Page.—p. 755.
*Clinical Effects of Cation-Exchange Resin (Zeo-Karb 225). R. A. Barker, I. R. Mackay and B. M. Evans.—p. 758.
Pernicious Anaemia and Macrocytic Anaemia in Africans in Uganda. H. C. Trowell.—p. 761.
Trend of Mortality in Childhood with Special Reference to Tuberculosis on Tyneside. R. M. Cammock and F. J. W. Miller.—p. 764.

Quinacrine in Lupus Erythematosus.—Since the summer of 1950 a total of 18 patients with lupus erythematosus have been treated with quinacrine (atabrine®) and only one did not improve. The first patient was given 0.1 gm. of quinacrine twice a day. The patient, who was very intelligent, said that no treatment he had received previously could compare with quinacrine. Two months later only minimal activity remained, and his skin, apart from yellow staining and some permanent destruction of the nose, showed few traces of former lesions. After ten weeks of treatment, when itching and hyperkeratosis developed on palms, arms, trunk, and thighs, the quinacrine was discontinued, and the hyperkeratosis subsided during the next two months. During the next eight months the lupus lesions became slightly more active but not enough to necessitate further hospitalization. The histories of several other patients are presented. There was considerable variation in the dosage. Some patients responded well to 100 mg. daily by mouth, while others required 300 mg. daily. The degree of improvement seems to be related to the degree of skin staining with quinacrine. At present 300 mg. is given daily until the skin is stained, and then 100 mg. daily as a maintenance dose. In some cases treatment for six weeks has been sufficient, and seldom need be longer than three months. In other cases repeated courses of one month, with an intervening rest period of a month, have been tried. A small maintenance dose given for several months might be valuable in patients with frequent relapses, but this has not yet been tried. The author suggests three possible modes of action of the drug on the skin in lupus erythematosus.

Clinical Effects of a Cation Exchange Resin.—The sulfonic resins, such as "zeo-karb 225," are long-chain, cross-linked polystyrenes whose sulfonic groups contain hydrogen ions available for exchange with metallic ions. They have a greater affinity for divalent than for monovalent ions, and a greater affinity for potassium ions than for sodium ions. The authors discuss the estimated ion-uptake of these resins and say that it was their aim to determine whether the aforementioned sulfonic resin was effective in taking up sodium in vivo. They used resin that had been five-sixths presaturated with potassium, and investigated its action in 10 persons, including 4 patients with congestive heart failure, 3 with the nephrotic syndrome, and 2 with pleurisy (convalescent), and 1 healthy person. The patients had been taking diets containing known quantities of sodium for at least a fortnight before the investigation. A simple method is outlined for estimating the sodium-removing potency of cation-exchange resins in vivo, based on the change occurring in urinary chloride and sodium excretion differences (expressed in milliequivalents) during the administration of resin. The validity of this method was checked by an alternative method involving fecal resin analysis. The response to the resin varied considerably, the sodium uptake ranging from 0.21 to 0.86 mEq. (average 0.5 mEq.) per gram of resin. Two patients with congestive cardiac failure were treated for five weeks with 100 gm. of resin daily. The initial response was good, with a steady loss of weight, but an ascites and a pleural effusion were not completely reabsorbed. There was, however, a gradual decline in the response of both patients to the resin, perhaps because the sodium content of their intestine was falling. Nevertheless, the sulfonic resin, presaturated with potassium to minimize the risk of hypokalemia, abstracts sufficient sodium from the intestine to justify its clinical use.

Medical Journal of Australia, Sydney

2:349-380 (Sept. 15) 1951

Role of Dental Sepsis in Systemic Disease. M. C. Davis.—p. 349.
"Out of Focus"—Medicine or Dentistry? A. B. P. Amies.—p. 353.
Bacteriology of Conjunctivitis in Queensland. J. B. G. Gibson.—p. 355.
Goniotomy for Congenital Glaucoma: Review with Report of Three Cases. R. Hertzberg.—p. 357.
Rhabdomyosarcoma of Skeletal Muscle. G. C. V. Thompson.—p. 359.
Rare Rh Allelomorph cᵛ. B. J. Arnold and R. J. Walsh.—p. 361.

2:381-416 (Sept. 22) 1951

The Golden Age of Medicine. L. Hurley.—p. 381.
Clinical Study of Infections of Newborn Occurring in Maternity Hospital Over Six-Month Period. C. Isbister.—p. 386.
Bacteriological and Clinical Study of Infection in Newborn Babies in Maternity Hospital Nursery. K. J. Coventry and C. Isbister.—p. 394.
Idiopathic Hyperlipaemia, with Report of Two Cases Occurring in One Family, and Review of Literature. P. S. Hetzel.—p. 396.
Splitting the Aorta and Dissecting Aneurysm. J. B. Cleland.—p. 399.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

95:2925-3016 (Oct. 6) 1951. **Partial Index**

*Epidemic of Bornholm Disease in Region of Amsterdam. L. F. Schaeffer.—p. 2938.
Bronchographic Aspects of Collapse of Lower Part of Lung. E. Huizinga and C. G. Sypkens Smit.—p. 2949.
Corticotropin (ACTH) in Treatment of Burns. I. van der Hal.—p. 2955.
Administration of Corticotropin (ACTH) in Burns. W. Hijmans and H. Muller.—p. 2957.

Epidemic of Bornholm Disease.—Schaeffer presents the histories of a number of patients, mostly children from 4 to 20 years of age, who suddenly became ill with high fever and severe pain in the abdominal and chest muscles, symptoms like those of the condition generally referred to as Bornholm disease (pleurodynia). The first cases were observed during May, 1951, but the disease rapidly assumed epidemic proportions and a total of 358 cases were observed in the northern part of Amsterdam and surroundings. Lay persons generally referred to the disease as "summer grip." The abdominal symptoms were so severe in some cases that appendicitis was suspected. In other cases, the pleurodynia was most pronounced. Temperature curves demonstrate that the fever is often intermittent, two or three attacks of high fever being separated by one or more days without fever or very slight elevation of temperature. A virus of the Coxsackie group, type "Powers," was isolated at the University of Amsterdam. The most frequent complications were pleurisy and a special form of tonsilitis with symptoms of herpes (herpangina).

Philippine Medical Association Journal, Manila

27:495-542 (Aug.) 1951

Serum Carotene and Vitamin A Level of Filipino Women During Pregnancy and After Delivery. I. Concepcion and R. L. Dee.—p. 495.
Acute Poliomyelitis with Bulbar and Respiratory Involvement: Early Detection and Principles of Management. A. J. Steigman and C. R. Belmonte.—p. 501.
Surgical Aspects of Peptic Ulcer. J. Estrada and P. T. Nery.—p. 509.
Visual Results of Cataract Extraction. G. de Ocampo.—p. 512.

Policlinico (Med. Sect.), Rome

58:213-292 (Aug.) 1951. **Partial Index**

Studies on Vital Blood Preparations in Patients with Constitutional Microcytic Anemia and Cooley's Anemia. E. Cavazzini.—p. 213.
*Influence of Transfusions with Blood from Pregnant Women in Patients with Rheumatoid Arthritis and Rheumatic Fever: Experimental Study on Human Beings. T. Luccherini and A. Pala.—p. 221.

Blood of Pregnancy in Rheumatic Disease.—Four patients with rheumatoid arthritis in whom all previous therapy had failed were given 300 cc. of blood by intravenous transfusion from women who were in the last trimester of pregnancy. Eight transfusions were given at five-day intervals and the patients were observed for three months. The condition of two patients was not changed. Improvement was moderate in one patient and good in another who had had the disease for 15 years. When two other patients with the same disease were given four intramuscular injections of 300 cc. of blood from pregnant women, their local and general symptoms became worse. Two patients with rheumatoid arthritis were given eight intravenous transfusions of 300 cc. of normal blood. Their state remained unchanged. A patient with rheumatic fever received three intra-

venous transfusions of 350 cc. of blood of pregnant women every other day. Results were good, proving that rheumatic fever may be treated with this method. Definite but transient eosinophilia was observed in patients who received blood of pregnant women, while the number of eosinophils did not change in patients who received normal blood. The increase in 11-oxycorticosteroid excretion was pronounced after transfusion of blood of pregnant women but slight after transfusion of normal blood. Excretion of 17-ketosteroids remained unchanged. The erythrocyte sedimentation rate decreased after transfusion of pregnant women's blood, but not after transfusion of normal blood. It is suggested that greater amounts of progesterone, estrogen, and gonadotropin are present in the blood of pregnant women, as well as significant amounts of cortisone. Further studies are needed to test this assumption and to prove that blood from pregnant women has a cortisone-like action in patients with rheumatoid arthritis and rheumatic fever.

Policlinico (Pract. Sect.), Rome

58:1025-1056 (Aug. 13) 1951

Acute Septic Osteomyelitis of Vertebrae: Clinical Observations and Therapeutic Conclusions. F. Romeo.—p. 1025.
Technique of Intrabronchial Catheterization "Under Direct Vision" With Aid of Métras Tube. C. Scarinci and E. Ciamillo.—p. 1032.
*Angiopneumocardiography in Streptomycin Therapy of Pulmonary Tuberculosis. E. Fasano and O. Gasparri.—p. 1036.

Angiopneumocardiography in Pulmonary Tuberculosis.—Angiopneumocardiography was performed in 107 patients with pulmonary tuberculosis to evaluate the effect of streptomycin therapy with regard to injuries of the blood vessels. The examination proved that anatomic vascular damage was related to the type, extent, and number of tuberculous foci. When exudative foci of recent formation were localized in one or more zones, angiopneumocardiograms were normal, indicating that streptomycin can be carried to the foci in sufficient doses. With small ulcerations not easily detected by standard radiography, angiopneumocardiography revealed irregularities and diminution of the network of vessels. In cavitary tuberculosis of recent formation decreased circulation was observed in the region of the cavity. In cavitary tuberculosis of long duration absence of circulation was more pronounced, and irregularities of the blood vessels extended to the adjacent areas. This diminished vascularity in cavitary tuberculosis explains the failure of streptomycin therapy, in that the antibiotic does not reach the foci in sufficient concentration. In all these patients angiopneumocardiograms taken before and after streptomycin therapy were the same, proving that the vascular damage of a tuberculous lung is irreversible.

58:1185-1216 (Sept. 17) 1951

Myoedema. A. Pozzi.—p. 1185.
*"Anesthetic Bath" of Sympathetic Nervous System and Its Applications in Renal Pathology. G. Dell'Adami and A. Franchini.—p. 1190.
Excretion of 11-oxycorticosteroids and 11-desoxycorticosteroids in Urine of Normal Persons and of Patients with Addison's Disease and Chronic Arthritis. L. Di Girolamo, L. Natoli, V. Patrono and others.—p. 1197.

"Anesthetic Bath" in Renal Lesions.—The technique of infiltration anesthesia called "anesthetic bath" was employed in 52 middle-aged patients with anatomic and functional lesions of the kidneys and ureter. This method consists of injecting very slowly large amounts of an anesthetic in low concentration in the cellular-adipose tissue surrounding the sympathetic nervous system. The lumbar region is the area of choice because its topography and the presence of adipose retroperitoneal cellular tissue enhance diffusion of the fluid. This surrounds a large area of the sympathetic nervous system and paralyzes its sensory and motor fibers. A dose of 250 cc. of procaine hydrochloride in 30% concentration was injected in the patients. Results were immediate and the treatment was almost definitive in 15 patients with calculous renal colic in whom pain subsided within few minutes. Spontaneous passing of a calculus occurred in three of these patients after two anesthetic baths. In 24 patients with chronic nephralgia the pain was relieved more slowly and reappeared after 8 to 12 hours, making additional anesthetic baths necessary. In 10 patients who had pyelitis or ureteritis an antibiotic was administered with the anesthetic bath. Good results were also obtained in four patients with anuria. Side-effects were not observed in any of the patients and the general condition was not impaired. Anesthetic bath is the simplest and easiest technique of infiltration anesthesia. Its therapeutic effect is more complete and lasts longer than that obtained with regional infiltration and nerve block.

Prensa Médica Argentina, Buenos Aires

38:2121-2186 (Aug. 24) 1951. **Partial Index**

General Pathology of Bronchial Stenosis. A. de Paula.—p. 2127.
*Uremic Lung. M. Kabanchik and M. Kleimans.—p. 2143.

Lung in Uremia.—Clinical and roentgenographic pulmonary changes in patients with chronic renal disease accompanied by severe uremia are probably due to increased azotemia, with or without cardiac failure; in nonfatal cases the changes disappear as the urea level decreases and the clinical condition improves. Clinical signs such as cyanosis, dyspnea, or cough may be slight or may suggest pulmonary disease, but x-ray study of the lungs shows that the one characteristic feature of uremic changes is that they are concentrated in the central part of the lung, leaving the peripheral areas free. Crepitant and subcrepitant râles are heard by auscultation over the lung fields that have characteristic roentgenographic shadows. These shadows are of the micronodular, floccular, or pseudocavitary type and differ from the roentgen shadows appearing in cardiac failure, miliary pulmonary tuberculosis, tumors, and other diseases of the lung. The author believes that there are factors, as yet unknown, that explain why these changes occur in the lungs of some patients and not in those of others. Three cases are reported.

Presse Médicale, Paris

59:1281-1300 (Oct. 6) 1951

Notion of Time in Course of Pathological Processes. R. Leriche.—p. 1281.
*Question of Obtaining a Cure of Renal Tuberculosis by Medicinal Treatment. E. Chauvin, H. F. Chauvin and A. Orsoni.—p. 1281.

Medicinal Treatment of Renal Tuberculosis.—The following scheme was employed in treatment of 100 patients with tuberculosis of the kidneys: Each patient was given several 30-day courses of treatment with 30-day rest intervals between the courses. Each course consisted of two periods. During the first period of 10 days, the patient received 5 cc. of chaulmoogra oil intramuscularly every second day. During the second period of 20 days, the patient received daily 2 cc. of chaulmoogra oil intramuscularly, 2 gm. of streptomycin intramuscularly in two divided doses, and 7 to 14 gm. of *p*-aminosalicylic acid in gradually increasing doses. This continuous treatment caused little fatigue to the patient and did not seem to induce streptomycin resistance, since functional signs of improvement became manifest mainly within the first days of the second period. Results of treatment should be evaluated only after three courses of treatment. Of these 100 patients, only 24 received three courses and were observed more than a year. Of the 24, 9 apparently recovered with disappearance of functional disturbances as well as of pus and Koch's bacilli from the urine. Three of the nine patients had a recurrence of symptoms that subsided definitely after a fourth 30-day course. Eight patients were improved with respect to cystitis and general condition, but pus and Koch's bacilli were still present in the urine. The remaining seven patients were therapeutic failures. Recoveries such as those obtained in the authors' nine patients may not yet be considered permanent and may be expected only in patients with early tuberculous lesions of the kidneys in the absence of cavitation and pronounced changes of the ureters.

59:1301-1320 (Oct. 10) 1951. **Partial Index**

Appeal for Publishing Observations Concerning Medical Genetics. A. Touraine.—p. 1301.
Metabolic Activity of Calcium Salt of *p*-aminosalicylic Acid; Does *p*-aminosalicylic Acid Exert Pituitary Antihormone Action in Addition to Its Antibacterial Action? J. Desbordes.—p. 1303.
Treatment of Ventricular Paroxysmal Tachycardia with Procaine Amide. F. Siguier and J. J. Welti.—p. 1304.

Metabolic Activity of Calcium Salt of *p*-Aminosalicylic Acid.—Various metabolic processes were studied systematically in patients treated with the calcium salt of *p*-aminosalicylic acid. It was found that the body weight of the patients was increased

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as a result of nitrogen retention rather than of water retention. The blood volume was diminished according to the hematocrit determinations. There was an increase in blood potassium levels, a tendency toward acidosis, decreased concentration of blood sodium, chloride, cholesterol, and glucose, and a tendency toward hyperproteinemia. White blood cell counts revealed a high eosinophilia with a tendency toward an increased number of lymphocytes and a reduced number of neutrophils. Examination of the urine revealed a tendency toward a fall in total nitrogenous constituents and in excretion of uric acid and 17-ketosteroids. These results contrast with those obtained in patients treated with corticotropin (ACTH). *p*-Aminosalicylic acid also exerts an effect opposite to that of corticotropin in tuberculosis. Experimentally produced tuberculosis in mice and guinea pigs is aggravated by cortisone and corticotropin, whereas in human tuberculosis *p*-aminosalicylic acid has a favorable effect on generalized symptoms, such as fever, loss of weight, appetite, sweating. It is suggested that *p*-aminosalicylic acid inhibits the secretion or action of corticotropin in addition to its antibacterial action.

Procaine Amide in Ventricular Paroxysmal Tachycardia.—Favorable results obtained by Mark and co-workers with procaine amide in treatment of ventricular arrhythmias induced the French authors to try this drug in treatment of prolonged attacks of ventricular paroxysmal tachycardia. With the patient in recumbent position and the head lowered, the drug was administered slowly (2 cc. or 200 mg. per minute) by intravenous route, under continuous electrocardiographic control and with measurements of arterial blood pressure taken every minute. From 2 to 15 cc. were required to check the attack. Although undesirable effects of the drug were not reported, it may be necessary to slow down and occasionally to discontinue the injection if severe nausea occurs or if hypotension, which is usually present in prolonged ventricular paroxysmal tachycardia, becomes more pronounced. Oral administration of procaine amide in daily doses of 4 to 5 gm. in divided doses, which later may be reduced to 3 gm. and even to 2 gm., proved sufficient to prevent relapses and to interrupt subintrant paroxysmal attacks of ventricular tachycardia. In patients with ventricular extrasystoles procaine amide also proved highly effective when administered orally in divided doses of 1 to 3 gm. daily.

Proceedings of Royal Society of Medicine, London

44:773-828 (Sept.) 1951. **Partial Index**

The 1951 Influenza Viruses. A. Isaacs.—p. 801.
Epidemiology of Influenza in Light of the 1951 Outbreak. C. H. Andrewes.—p. 803.
Juvenile Rheumatoid Arthritis (Still's Disease). J. H. Middlemiss.—p. 805.

44:829-904 (Oct.) 1951. **Partial Index**

Analgesics as Supplements During Anaesthesia. W. W. Mushin.—p. 840.
Some Structural Defects in Upper Uterine Segment, Associated with Abnormal Uterine Action in Labour. A. C. Palmer.—p. 867.
Activity of Cervix of Human Uterus and Its Response to Drugs. H. O. Schild.—p. 869.
Anatomy of Human Cervix in Pregnancy. P. E. Hughesdon.—p. 871.
The Relapse Club Foot. A. T. Fripp.—p. 873.

Rev. Asociación Médica Argentina, Buenos Aires

65:277-316 (July 15-30) 1951. **Partial Index**

Adrenalectomy: Indications and Results. P. Wertheimer.—p. 277.
*Sciatica. G. Costa Bertani.—p. 300.

Sciatica.—Discovery of the etiologic and pathogenic factors in cases of intractable sciatica of long standing is essential for correct treatment. Genitourinary disorders, congenital spinal anomalies, flat feet, bony alterations in the feet and legs, osteoarthritis of the lumbar spine, radiculitis of various kinds, and infectious diseases such as typhoid, brucellosis, and influenza may give rise to low back pain. The pain simulates that caused by disk pressure, whether there is radiation along the trunk of the great sciatic or not. The author believes that a thorough examination of the patient will disclose the true cause of the pain. This examination should be made by a general practitioner and not by a specialist, because the general practitioner is in a better position to evaluate the data obtained. Careful interrogation and a complete history will also be helpful in making a correct diagnosis. The treatment of choice is medical. Orthopedic and surgical treatment have special indications. Eighty per cent of the author's patients were relieved by medical means; the other 20% required orthopedic or surgical treatment. He stresses the fact that correction of an underlying cause will often cure even longstanding sciatica.

Revista Brasileira de Cirurgia, Rio de Janeiro

22:1-78 (July) 1951. **Partial Index**

*Treatment of Carcinoma of Bladder. G. S. de Gouvêa.—p. 3.

Treatment of Bladder Carcinoma.—Total cystectomy is the most rational and effective method of treating urinary bladder carcinoma if it can be carried out before metastases appear. The conservative attitude of many urologists is not warranted, because the neoplasm in its early stages is confined to the bladder and radical surgery at this time may result in cure. Many patients who formerly would not have been benefited by surgery can now undergo operation safely because of the use of antibiotics, methods of prevention and treatment of shock, newer concepts of water, saline, and protein balance, and other technical advances. The author lists four classes of neoplasms as requiring total cystectomy: (1) papillary carcinomas of low malignancy which tend to recur; (2) papillary carcinomas of low malignancy in multiple locations; (3) infiltrating papillary carcinomas and infiltrating carcinomas of whatever size and degree of malignancy located at the base of the bladder or connected with the ureteral meatus or the neck of the bladder; and (4) papillary carcinomas, infiltrating papillary carcinomas, and infiltrating carcinomas, of whatever degree of malignancy or location, when they are large or medium-sized. The urinary stream is diverted either before cystectomy or concurrently. The author considers ureterosigmoidostomy the ideal procedure; death seldom results from the operation and the urinary stream diversion does not interfere with any occupation or social activity. He has performed the operation for various reasons in more than 90 cases with complete success. Most of the 41 cases of urinary bladder carcinoma reported here were so far advanced that cystectomy was carried out as a palliative measure; nevertheless, of 18 living patients, 1 has survived for 13 years; 1 for 6 years; 1 for 5 years; and 13 for from 1 to 3 years.

Revista Clínica de São Paulo

27:79-100 (July-Aug.) 1951. **Partial Index**

*Acute Case of Chagas' Disease: Treatment with New Drug. O. M. de Barros and D. P. Nogueira.—p. 79.

New Drug in Acute Chagas' Disease.—Carbidium sulfate (168C49) proved effective against experimental Trypanosoma cruzi infections in mice. It has no toxic effects when administered intravenously in spaced doses. The authors used it in treatment of a 14-year-old girl with acute Chagas' disease. She had had unilateral periorbital edema and other ocular symptoms with fever for a month, and showed enlarged cervical, submental, and preauricular lymph nodes on the right side. She gave a history of having been bitten several times by Triatoma bugs. Daily blood smears for one week preceding treatment consistently showed large numbers of T. cruzi parasites. The patient was febrile throughout this period, with persistence of Romaña's sign. The area of the roentgen shadow of the heart was increased 24% above normal. Sixteen milligrams (0.5 mg. per kilogram of body weight) of carbidium sulfate in a 0.5% solution, or 3.2 cc. of the solution daily, was administered intravenously on five successive days. One-half the dose was given on the first day, in order to test the patient's tolerance for the drug. No harmful effects were noted. Blood smears after the first series of treatments still showed active forms of T. cruzi, although in reduced numbers. A new series was carried out, using 6.4 cc. of the solution daily (1 mg. of the drug per kilogram of body weight). Blood smears made after this series showed complete disappearance of circulating parasites, a phenomenon which

sometimes occurs in the natural evolution of the disease. Two months after treatment began the patient was discharged in perfect health, with instructions to return in three months for follow-up. The authors stress that her heart, which was enlarged before treatment, as a result of the disease, returned almost to normal size following treatment. This change apparently resulted directly from the action of the drug. Further study and use of carbidium sulfate is needed to determine whether it is genuinely effective in treating the acute stage of Chagas' disease.

Revista Médica de Chile, Santiago

79:553-614 (Sept.) 1951. **Partial Index**

*Corticotropin (ACTH) and Cortisone in Rheumatoid Arthritis. J. Zañartu, M. Losada and V. Ide.—p. 558.
*Absorption of Corticotropin (ACTH) by Respiratory Route. J. Grau, C. Larrain and I. Duque.—p. 588.

Corticotropin and Cortisone in Rheumatoid Arthritis.—Corticotropin (ACTH) and cortisone are indicated in rheumatoid arthritis as concomitant treatment with either gold or copper therapy. Cortisone alone or with corticotropin was given to 25 patients with typical rheumatoid arthritis of long duration. Three of the patients had Felty's syndrome. All of the patients had acute rheumatic symptoms that had not responded to previous treatment. The disease was advanced in 19 cases. The drug was given intramuscularly and/or orally. The initial dose was 100 mg. of either drug. The maintenance dose varied between 25 and 100 mg. of cortisone and between 10 and 40 mg. of corticotropin, either daily or at two or three day intervals up to a total dose of from 2 to 3 gm. for each course of treatments. The series was repeated two or three times at intervals of one month. Combined treatment with either gold or copper salts was given to 17 patients. The hormonal treatment resulted in the immediate control of local pain and inflammation, improvement of the general condition, appetite, physical strength, anemia, and leukopenia, and control of fever and of the symptoms of infection in all patients, regardless of the stage of the disease. The erythrocyte sedimentation rate diminished to normal early in 15 of 18 cases and late following treatment in one case. In two cases it did not change. In cases of Felty's syndrome splenomegaly and hepatomegaly greatly but temporarily diminished. The results of treatment were as good for patients with a negative response to the Thorn's test of epinephrine-induced eosinopenia as for those with a positive response. Improvement appeared later in the former patients than in the latter. The functional response of the joints was good in the six patients in the early stage of the disease and poor in the 19 patients with articular lesions. The disease recurred within the first two weeks after hormonal treatment in the majority of cases. Fifteen patients are still receiving hormonal treatment for recurrences. Ten patients have been observed for from 1 month to 324 days without any treatment. Remission has lasted from one and a half to six months after discontinuation of treatment for four patients. This group includes three patients who had the combined hormonal and either gold or copper treatment and one patient who had only the hormonal treatment.

Absorption of Corticotropin by Lung.—Corticotropin (ACTH) aerosol was given by inhalation to six normal persons and three patients with bronchial asthma. The degree of absorption by the lung was determined by the lowering of the circulating eosinophils (Thorn's test). The number of circulating eosinophils was determined every hour for three or four hours after inhalation of corticotropin aerosols. The solution given by inhalation contained 32.5 mg. of corticotropin in 2 cc. of distilled water. The entire amount was given in a single dose. Oxygen under a pressure of 5 to 7 lb. (2.3 to 3.2 kg.) per square inch was used to vaporize the solution during inspiration. A valve prevented elimination of the aerosol during expiration. The response of the circulating eosinophils in all nine cases was similar to that obtained after intramuscular injection of corticotropin. The fewest circulating eosinophils were observed within the first and second hour after administration of corticotropin aerosols. The patients tolerated inhalation well, complaining only of transient moderate salivation.

Revue Médicale de Liège

6:677-708 (Oct. 15) 1951

Post-Transfusional Reactions and Compatibility Tests. P. Jossa.—p. 677.
*Eosinophilia and Diagnosis of Allergic Disorders. J. Lecomte.—p. 682.
Calcium-Phosphorus and Vitamin D Metabolism in Infants. R. Houet.—p. 686.

Eosinophilia and Diagnosis of Allergic Disorders.—Eosinophilia in the sense of formation and accumulation of more than 400 eosinophil cells in 1 cu. mm. of blood may be associated with all the disorders and processes of sensitization due to absorption of foreign proteins, such as asthma, hay fever, echinococcic cysts, allergic digestive disorders, attacks of urticaria, Quincke's edema, Loeffler's syndrome, periarteritis nodosa, pregnancy, helminthiasis, Hodgkin's disease, secondary carcinoma of the liver, scarlet fever, copper and benzene poisoning, certain forms of tertiary syphilis, leprosy, and Duhring's disease. Eosinophilia may be even more pronounced in morbid or constitutional manifestations without any allergic component, such as the familial high eosinophilia, Cazal's polyneuritis, eosinophil leukemia, erythremia (Vaquez's disease), and certain types of severe cardiac decompensation. In anaphylactic shock, i. e., on exposure to stress in Selye's meaning of the term, there is no eosinophilia. Because of this particular inconsistency and because of the wide range of disorders associated with generalized eosinophilia of the circulating blood, the latter has no diagnostic value in allergic disorders. In experimental allergy the phenomenon of Arthus may be considered as a good example of an eosinophil reaction. In man, cell infiltration in acute localized allergic reactions that are not of bacterial origin may be composed occasionally of eosinophils produced in loco. This eosinophilia may be of some diagnostic value as an allergic manifestation, if it is associated with a spasm of the smooth muscles, with mucous hypersecretion, or with sudden appearance of edema. Generalized or localized eosinophilia is produced by molecules foreign to the organism, which at one time have antigenic properties but at another time do not have this function. The presence of eosinophilia does not necessarily indicate an allergic reaction, since eosinophilia occurs also with other conditions.

Revue du Rhumatisme, Paris

18:447-506 (Sept.) 1951. **Partial Index**

Morphology of Shoulder and Scapulohumeral Periarthritis. R. J. Weissenbach and P. Pizon.—p. 447.
Remarks on "Articulations" of Vertebral Bodies and Significance of Term "Amphiarthrosis." J. Lacapère.—p. 456.
*Six Months of Use of Cortisone and Corticotropin (ACTH) at Rheumatological Center of Purpan. E. Roques, C. Darnaud, R. Bollinelli and others.—p. 462.

Use of Cortisone and Corticotropin at Rheumatological Center.—During a six-month period 70 patients with various rheumatic conditions were given short courses of treatment with cortisone and corticotropin, the supply of these drugs still being small. Cortisone was given first in doses of 200 to 300 mg. daily for one to three days, then in daily doses of 100 mg. until the maximum therapeutic effect was reached, and finally in daily maintenance doses of 75 mg. and occasionally 50 mg. for three to eight days. The dosage of corticotropin varied considerably because of variations in concentration and purity of the available preparations, but a daily dose of 100 mg. was administered in many cases and had to be maintained in order to obtain the desired effect. In the authors' limited experience, it seemed that in patients with polyarthritis rapid recurrences were observed less frequently than had been reported by other workers. Improvement of patients with recent chronic polyarthritis was obtained with a short course of treatment with cortisone and was definitely maintained for three months after discontinuation of the drug. Cortisone already is considered of practical importance in the treatment of chronic polyarthritis associated with little destruction of tissue. Chrysotherapy was combined with administration of cortisone in nine patients and with administration of corticotropin in one patient. Total doses of 1 gm. to 1.3 gm. of gold salt were given intramuscularly within 13 to 30 days, and were well tolerated under the protection afforded by the hormones. Corticotropin and cortisone were effective in one patient with myocardial infarction and in three patients with

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arteritis of Buerger's type, but on the other hand the risk of thromboembolism should not be underestimated. The authors agree that these drugs may precipitate endogenous tuberculous reinfection or aggravate an infectious process such as septic endocarditis, or produce pulmonary edema in patients with cardiac disorders of rheumatic origin.

Riforma Medica, Naples

65:893-916 (Aug. 18) 1951. **Partial Index**

Insulin-Resistance of Immunity Type: Demonstration of Anti-Insulin Serum Factors with Antibody Characteristics. V. De Filippis and A. Iannaccone.—p. 893.
*Methonium Compound in Absorption Delaying Solution in Therapy of Arterial Hypertension: Preliminary Report. V. Masini and P. Rossi.—p. 898.
Apparatus for Transfusion of Oxygenated Blood into Arteries. C. Sabbatini.—p. 900.

Pentamethonium Iodide in Hypertension.—Six patients with essential hypertension, 6 with hypertension and heart disease, 8 with malignant hypertension, and 10 with hypertension due to subacute and chronic nephritis were given intramuscularly 50 mg. of pentamethonium iodide in water solution. Responses occurred within 15 seconds after the injection. Systolic pressure dropped 60 mm. Hg and diastolic pressure 30 mm. Hg. The fall in blood pressure persisted five hours and reached its maximum after one hour. Pronounced side-effects, like dizziness and symptoms of fainting, occurred when the patient returned to a standing position. Subsequently, 50 mg. of pentamethonium iodide in a 20% concentration of polyvinyl pyrrolidone were given intramuscularly to the same patients. Systolic pressure fell 50 mm. Hg and diastolic pressure 25 mm. Hg. The hypotensive effect lasted six and one-half hours and reached its maximum one and one-half hours after the injection. Side-effects on arising occurred only in two patients. Best results were obtained in patients with essential hypertension associated with nephropathy and renal insufficiency, in whom the hypotensive effect sometimes lasted 48 hours. Electrocardiograms and blood flow recordings taken before and after the two injections showed no changes. Responses to the Hines and Brown test decreased after each of the two injections. The authors, comparing the results, suggest that intramuscular administration of pentamethonium iodide in a 20% concentration of polyvinyl pyrrolidone may become the treatment of choice for patients with hypertension. This preparation should be used with caution because it tends to accumulate in the organism, and glomerular filtrate probably decreases.

Scalpel, Brussels

40:1125-1154 (Oct. 6) 1951. **Partial Index**

*Treatment of Acute Penicillin-Resistant Osteomyelitis. P. Dewinne, P. Solbreux and J. Legros.—p. 1125.

Penicillin-Resistant Osteomyelitis.—The incidence of osteomyelitis has declined since 1945 because penicillin is widely used in conditions leading to it (such as furunculosis, bronchopneumonia, pyodermatitis) and in mild cases which are probably aborted before diagnosis can be established. Deaths resulting from osteomyelitis in children have disappeared in the authors' practice. The course of the disease has been greatly modified by prolonged use of penicillin in massive doses. Surgical intervention is no longer necessary even when necrosis has involved a large part of the diaphysis and sequestra are forming. Immobilization by plaster casts is still carried out, and hospitalization averages from three to four months. Patients have a slightly elevated temperature (37.2 to 37.7 C), beginning on the 8th or 10th day of treatment and continuing for three or four months. The authors suggest that this fever, which begins as a result of infection, may later be due to the processes of tissue repair accompanied by metabolic disturbances and the resorption of toxic material. Patients with slightly elevated temperature frequently seem to be clinically and radiologically cured by the sixth week of treatment. Cases that do not yield to penicillin alone may be cured by using aureomycin in addition. A 5-year-old child who had a Staphylococcus aureus infection received massive doses of penicillin. His general condition was good, but the osteomyelitis progressed until there was a Brodie's abscess near the elbow of the affected arm and extensive bony destruction of the diaphysis with fracture and beginning sequestration. Penicillin (800,000 units daily) was continued, but 400 mg. of aureomycin daily was given in addition. Three weeks later the abscess had disappeared and the bony structure of the diaphysis no longer appeared soft. Penicillin was continued at the rate of 800,000 units daily, but six weeks later the aureomycin was reduced from 400 mg. to 200 mg. daily, until treatment terminated. Five months after aureomycin was started, x-ray films showed a perfectly reconstituted cubitus. Aureomycin acts on pathogenic bacteria more rapidly than penicillin, thus preventing massive liberation of toxins that dissolve bony tissue. This bacteriostatic action permits the leukocytes to sterilize the purulent liquid surrounding the bone and the sequestrum, which is then in an aseptic field and acts like a bony graft, being recolonized by the healthy bone. Aureomycin thus replaces surgery, which was formerly indispensable in treatment of osteomyelitis.

Schweizerische medizinische Wochenschrift, Basel

81:937-960 (Sept. 29) 1951

Experiences with Cortisone and Corticotropin (ACTH) Therapy in Primary Chronic Polyarthritis. A. Böni and A. Jung.—p. 937.
*Therapy of Rheumatic Diseases with Hormones. H. Doebeli.—p. 942.
Cortisone in Treatment of Keratitis Disciformis and of Herpes Simplex Corneae. R. Moser.—p. 945.
Temporal Arteritis: Case Treated with Cortisone. J. P. Doret, J. L. Roux and A. Rywlin.—p. 946.
Significance of Adrenal Cortex in Allergic Processes. F. Gross and R. Meier.—p. 949.
Effect of Cortisone on Urinary Elimination of Amino Acids. G. Milhaud and J. P. Doret.—p. 953.

Hormone Therapy of Rheumatic Diseases.—In 1949 Lewin and Wassen reported that they obtained favorable results with the combined administration of desoxycorticosterone acetate and large doses of vitamin C in treatment of patients with chronic polyarthritis. Investigators who subsequently tried this treatment reported contradictory results. Doebeli tried this combination in 80 patients and cortisone in 17 patients with various rheumatic disorders of an average duration of 10 years. Desoxycorticosterone acetate and vitamin C rarely had any effect in chronic polyarthritis, in spondylitis deformans, or in arthritic and neuritic manifestations of gouty arthritis. Cortisone, on the other hand, had a surprising effect in chronic polyarthritis as long as its administration was continued. When treatment was interrupted, the original symptoms recurred, usually within two weeks. Many patients had an exacerbation following cessation of treatment with cortisone. Similar effects were observed in spondylitis deformans. In chronic relapsing gouty arthritis, however, remissions persisted for long periods even after cortisone treatment was discontinued. When tried in the same patients, cortisone was definitely superior to the combination of desoxycorticosterone and vitamin C. Even treatment with gold preparations was more effective than treatment with desoxycorticosterone and vitamin C. However, if this combination therapy is followed by the administration of gold salts, they may become active when they were not before. Gold preparations have a much slower and weaker effect than cortisone, but their therapeutic effect is more lasting.

Settimana Medica, Florence

39:333-352 (July 15) 1951

Studies on Biological Action of Mineral Water "Sorgente Panna." G. Coronedi, G. Guidi and R. Marri.—p. 333.
*Clinical Experiences with Ethyl Biscoumacetate (Tromexan® Ethyl Acetate). V. Debenedetti and G. Limone.—p. 339.
Case of Severe Hypoprothrombinemia Due to Bishydroxycoumarin (Dicumarol®). L. Tropeano.—p. 342.
*Thrombosis Due to Strain: Primary Thrombosis of Axillary and Subclavian Veins, with Observations on Two Cases. G. Micheli-Pellegrini and M. Rosselli.—p. 345.

Ethyl Biscoumacetate in Thromboembolic Disease.—Fifty-nine patients with thromboembolic disease, including myocardial infarction, phlebothrombosis and thrombophlebitis, pulmonary embolism, cerebral thrombosis, Buerger's disease and arteriosclerotic arteritis, coronary insufficiency, cardiac decompensation with pulmonary infarction, and septic endocarditis with thromboembolic complications, were treated with ethyl bis-

coumacetate (tromexan® ethyl acetate). Administration of 1,200 to 2,400 mg. in divided doses during the first 48 hours usually induces a therapeutically satisfactory prolongation of the prothrombin time. During the same time 12 patients were given 50 mg. of heparin every 4 to 6 hours. Prothrombin determinations were performed once or twice daily using thromboplastins prepared by the authors from brain and lung of rabbit. A prothrombin activity of 20 or 30% of normal was regarded as optimum for therapeutic purposes. Daily doses of 300 to 600 mg. (1 to 2 tablets) of ethyl biscoumacetate were sufficient to maintain this level. The treatment lasted from 11 to 142 days. Results were good in patients with myocardial infarction, phlebothrombosis, thrombophlebitis, pulmonary embolism, in one patient with cerebral thrombosis, and one patient with septic endocarditis. Hematuria and epistaxis occurred in two patients and were controlled by reducing or stopping administration of the drug. Gastrointestinal bleeding occurred in one patient, aged 69, to whom vitamin K was administered. Hematuria associated with bleeding from the mouth and the skin occurred in one patient whose condition was critical before treatment was begun. These data suggest that ethyl biscoumacetate may play an important part in anticoagulant therapy of thromboembolic disease if prothrombin times are determined accurately.

Thrombosis of Axillary and Subclavian Veins.—Thrombosis of the axillary and the subclavian veins caused by effort is reported in two healthy men, a student aged 20 and a delivery man aged 38. Both patients complained of pain in the right arm that appeared after a strain. Function of the arm was not impaired, temperature was normal, and physical findings were normal except for swelling and slight cyanosis in the arm. In both patients dilated superficial veins were observed over the anterior part of the chest, the axilla, and the shoulder. Despite the doctor's advice, the student continued his athletic activity. Four days after the first trauma, a rise in temperature associated with dyspnea and rusty sputum confined him to bed. His temperature returned to normal after 48 hours. Rusty sputum reappeared seven and nine days after the first trauma, suggesting pulmonary embolism. The student participated again in athletics and one month later was well. The second patient received repeated diathermy treatment, and after one month the arm was normal and all disturbance had disappeared. The authors review extensively the literature and discuss the therapy of this rare entity. They suggest that anticoagulant therapy may be useful in preventing pulmonary embolism.

Thorax, London

6:209-342 (Sept.) 1951

Polythene Pack Operation for Pulmonary Tuberculosis. H. M. Davies, L. J. Temple and C. Stathatos.—p. 209.
Thoracoplasty Concomitant with Resection for Pulmonary Tuberculosis. J. K. B. Waddington.—p. 230.
Tuberculoma of Lung. E. N. Moyes.—p. 238.
*Avoidable Vascular Spread in Resection for Bronchial Carcinoma. J. A. Aylwin.—p. 250.
Comparison of Role of Bronchial Arteries in Bronchiectasis and in Experimental Ligation of Pulmonary Artery. F. B. Cockett and C. C. N. Vass.—p. 268.
Veins of Oesophagus. H. Butler.—p. 276.
Accuracy of Spirographic Recording at High Respiratory Rates. L. Bernstein and D. Mendel.—p. 297.
Subdiaphragmatic Haematocele Due to Pneumoperitoneum. E. G. W. Hoffstaedt.—p. 310.
Late Results in Transthoracic Herniotomies. T. C. Gertz, J. E. P. M. Regout and G. Thomsen.—p. 316.
Measurement of Blood Pressure in Oesophageal Varices. P. Allison.—p. 325.

Avoidable Vascular Spread in Carcinoma Resections.—Few of the 111 patients who had undergone pneumonectomies for bronchial carcinoma at the Thoracic Surgical Unit at Leeds before the end of 1949 are still alive. There are also indications that, although intrapericardial resection of bronchial carcinoma has reduced the incidence of local recurrence, it is not affecting survivals to the extent that might be expected from such an advance in treatment. Retrospective examination of the Leeds series had led to the belief that more practical attention might be paid to the role of the pulmonary veins in the spread of carcinoma to the rest of the body. Aylwin shows that erosion of veins in bronchial carcinoma is both common and serious, and contamination of the general circulation at operation should be anticipated by tying the pulmonary veins inside the pericardium before manipulating the tumor. Without this modification in technique all subsequent vascular deposits cannot be considered unavoidable. Massive malignant emboli during pneumonectomy are rare, but two cases are described, and it is suggested that smaller ones occur frequently but are unrecognized. In gastric carcinoma it is possible that a similar process occurs in the portal circulation, where prevention is simple with the thoracoabdominal approach. Results of surgical treatment of both bronchial and gastric carcinoma need to be improved despite the advance of radical resection, and the importance of vascular spread has been neglected in planning surgical technique.

Tubercle, London

32:185-208 (Sept.) 1951

Extrapleural Pneumothorax. D. Barlow.—p. 186.
Pulmonary Tuberculosis Amongst Displaced Persons. E. Posner.—p. 194.
Thiosemicarbazone (T. B. 1): Year's Experience of Its Use Alone and in Combination with PAS. R. Z. Ptaszynski and A. E. K. Salvi.—p. 197.

32:209-230 (Oct.) 1951

Tests for Streptomycin Sensitivity of M. Tuberculosis on Solid Medium. J. Fielding.—p. 210.
Currents of Action in Pulmonary Parenchyma (Preliminary Note). C. Xalabarder.—p. 214.
Thiosemicarbazone in Chemotherapy of Tuberculosis: Report of Pilot Trial Organized by the Research Committee of the British Tuberculosis Association.—p. 217.
Coincident Active Pulmonary Tuberculosis and Bronchial Carcinoma. B. Couts.—p. 223.

Zentralblatt für Gynäkologie, Leipzig

73:1507-1570 (No. 19) 1951. **Partial Index**

Menstrual Hygiene. D. Benthin.—p. 1512.
Clinical Experience with Use of Vaginal Tampons. M. Brey.—p. 1514.
Failure of Bone Marrow During Pregnancy. E. Fritze and G. Martius.—p. 1517.
*Diagnosis of Simultaneous Extrauterine and Intrauterine Pregnancy. T. K. Pütz.—p. 1522.
*Pulmonary Abscess in Puerperal Sepsis. A. Verhagen.—p. 1530.
*Therapy of Tetanus Following Criminal Abortion. G. Boerner.—p. 1533.

Simultaneous Extrauterine and Intrauterine Pregnancy.—Three cases of simultaneous extrauterine and intrauterine pregnancy are reported. In one case early surgical removal of the ectopic pregnancy on the right side made it possible for the intrauterine pregnancy to be carried to term, and a mature female infant was delivered spontaneously. In the other two cases the intrauterine pregnancy was aborted and the extrauterine pregnancy was then treated surgically. The author stresses the diagnostic value of the puncture of Douglas' pouch in such cases.

Pulmonary Abscess in Puerperal Sepsis.—Puerperal sepsis developed in a primipara, aged 21, and did not respond to sulfonamide and penicillin therapy. On the 23rd day after delivery several pulmonary emboli developed, which presumably originated from a pelvic venous thrombosis. Sputum examinations made subsequently revealed Bacterium coli, Bact. proteus, and Streptococcus viridans. Roentgenoscopy three weeks after the pulmonary embolism revealed a large opacity in the right lower lobe and a smaller one in the infraclavicular region. Since neither the sulfonamide nor penicillin therapy (over 5,000,000 units) seemed to be effective, treatment with aureomycin was begun (250 mg. eight times daily) and continued for 20 days (total dose of 40 gm.). At the end of treatment with aureomycin the temperature had become normal and the abscess had healed. The sputum, which had been profuse during the aureomycin therapy, rapidly decreased. Complete cure is ascribed to the aureomycin therapy.

Therapy of Tetanus Following Criminal Abortion.—In the case reported abortion had been induced during the seventh month of pregnancy. Tetanus resulted after an incubation period of only eight days. Treatment consisted in the total extirpation of the unopened uterus and administration of comparatively small doses of tetanus serum. The author stresses that the removal of the infected uterus is of vital importance, the serum therapy being only supportive.

BOOK REVIEWS

Tuberculosis Among Children and Adults. By J. Arthur Myers, M.D., Ph.D., Physician in Charge, Chest Clinic, Students' Health Service, University of Minnesota, Minneapolis. Introduction by Allen K. Krause, M.D. With chapters by O. Theron Clagett, M.D., F.A.C.S., and others. Third edition. Cloth. $12.50. Pp. 894, with 177 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; The Ryerson Press, 299 Queen St., W., Toronto, 2B, 1951.

This volume covers tuberculosis with a completeness that leaves no phase of the disease untouched. It is organized into four principal parts: the first deals with tuberculosis in infancy; the second, with tuberculosis in childhood; the third, with tuberculosis among young adults; and the fourth, with recent progress in tuberculosis control. This takes up more than half of the text. The treatment of the subject gives equal emphasis to the clinical phases of tuberculosis, practical measures for its control, and research efforts to improve therapeutic handling. Extensive attention is given to new methods of treatment, particularly modern surgery and chemotherapy. The book is extensively documented, and each chapter has an excellent summary. The illustrations, including many roentgenograms, are adequate. As a reference book and a guide to the practicing physician, this treatise can be thoroughly recommended.

Diathermy: Short-Wave Therapy, Inductothermy, Epithermy, Long-Wave Therapy. By William Beaumont, M.R.C.S., L.R.C.P., Director of Physical Medicine, Westminster Hospital, London. Second edition. Cloth. 21s. Pp. 230, with 114 illustrations. H. K. Lewis & Co., Ltd., 136 Gower St., London, W.C.1, 1951.

The physical principles of short wave and so-called conventional diathermy are dealt with in a readable and nonmathematical fashion. Because of the almost complete disappearance of the practice of "conventional diathermy," the discussion relating to this subject is more of historical interest than practical value. It is generally felt that there is no critical evidence to substantiate any effect of diathermy other than the thermal effect. One might question the soundness of the author's opinion that there is an "athermal action." Much of the text relating to clinical application considers methods of applying pad and air-spaced electrodes. Methods of applying conventional diathermy, an almost archaic practice, should have been replaced by discussion of microwave diathermy; however, the author feels that there is insufficient clinical evidence to make it of definite therapeutic value. The purpose of the second edition is to inform the physical therapist and the English physician seeking the diploma for medical practitioners of the advances in knowledge of the behavior and application of high frequency currents. This group will find the text a good source for part of the information they desire.

Diagnostic Standards and Classification of Tuberculosis. 1950 edition. Paper. Pp. 64. National Tuberculosis Association, 1790 Broadway, New York 19, 1950.

Need for a definite classification of tuberculosis was recognized early in this century. In 1904, Dr. Edward Livingston Trudeau suggested this need to the National Association for the Study and Prevention of Tuberculosis. There followed, through the intervening years, the formulation of the tentative standards, ending in their final adoption by the National Association in 1913. However, not until 1917 (during the early months of the Framington Health Demonstration) was the first edition of the Diagnostic Standards published. Through the ensuing years, eight other editions have been published; these include complete or partial revisions and several reprintings. In reviewing the various editions, one may follow the evolution of the present day methods of diagnosis and classification of pulmonary tuberculosis.

The ninth edition has undergone complete revision, so that current concepts are embodied, and a chapter on screening classification for mass roentgenographic surveys is added. The increasing use of mass chest surveys in industry, and cities and towns throughout the country has shown the need for a definite system of classification of the abnormalities noted on the films processed during these surveys. The classification for use in roentgen surveys should prove of great value. If followed in reporting the results of chest surveys, this would mean uniformity of reports and comparisons. In the chapter on the classification of tuberculosis, a section on the location of lesions has been added. This follows the Jackson and Huber terminology and classification of bronchopulmonary segments. Of greater interest, however, is the recognition given to the refinements in laboratory diagnoses by culture methods and the changes made in the clinical classification as a result of these refinements. The term "arrested," as used in this new terminology, differs considerably from that used in the old classification. Arrested as it is now used in the medical profession, will have to be discontinued, as patients may be classified as having arrested disease under the new terminology, even if they have an occasional positive sputum by smear. The term "inactive," as described in the new classification, requires six months of stability of lesions as shown by roentgenograms, absence of constitutional symptoms, and, in addition, negative sputum, including cultures or animal inoculation.

The new standards have introduced another change, in that the exercise requirement for clinical classification has been dropped. A separate section has been introduced on the exercise status. Although the exercise status of the patient plays no part in the clinical classification, it is to be indicated in the diagnosis. A chapter on vocational rehabilitation has been added. This points out the need for physicians to direct and prescribe the gradual return of the inactive patient to reemployment and normal living within the limits of his residual disability. The National Tubeculosis Association is to be congratulated on this fine piece of work. Their Standards have become so widely used and accepted throughout the world that it is imperative for all physicians who deal with tuberculosis to become acquainted with the terminology in the new edition of the Diagnostic Standards.

Leitfaden der Laparoskopie und Gastroskopie. Von H. Kalk, Prof. Dr. Med., leitender Arzt der inneren Abteilung des Stadtkrankenhauses Kassel, und W. Brühl, Dr. Med. habil., Chefarzt der inneren Abteilung des Paulinehospitals Arolsen. Unter Mitwirkung von W. Burgmann, Dr. Med., Chefarzt des Sanatoriums "Dr. Schorlemmer" Bad Godesberg. Cloth. 27 marks. Pp. 159, with 82 illustrations. Georg Thieme, Diemershaldenstrasse 47, (14a) Stuttgart O; agents for U. S. A., Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1951.

The authors describe their technique with clarity in this booklet. The first two-thirds of the book is devoted to laparoscopy. The authors call attention to indications and contraindications, note the pitfalls that may be present and tell how to avoid them, and describe their instrumentarium. All this is clearly done, and the reader feels that he can carry out the procedures fairly well, especially after the suggested initial attempts on a cadaver. The accurate interpretation of what one sees requires practice and experience. The following paragraph taken from page 38, should have been printed in heavy black print, so that it would not be overlooked. "The patient must be carefully observed after the procedure [laparoscopy] to be on the alert for signs of hemorrhage or emphysema of the skin. The patient should be kept at bed rest for one or two days after an uncomplicated case." In other words laparoscopy is not an office procedure. The authors claimed to have gained a surprising amount of knowledge by use of the laparoscope.

The booklet is well illustrated, with many colored pictures obviously painted from observation rather than from actual color photographs. Although the section on laparoscopy is well presented, the value of the procedure is limited. The section on gastroscopy is equally interesting, and here, the authors are on firmer, better explored, ground. The book is well written in simple German; the printing is excellent, and the text is well arranged and conveniently divided and indexed.

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

Instruments and Apparatus in Orthopaedic Surgery. By E. J. Nangle, M.B., Ch.B., F.R.C.S. Cloth. $9.50. Pp. 231, with 200 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto, 2B, 1951.

This is a reference book written to complement other works on orthopedic surgery. In it are found descriptions of various appliances that the author has tested. Nangle feels the ultimate aim of splinting is to preserve and restore function; hence, he uses an anatomic and functional classification in presenting his material. The first chapter considers the basic principles of splinting, and a short chapter is devoted to the principles of splinting in poliomyelitis. The ideas expressed are in line with the present trend away from the excessive splinting that has been used in the past; however, exception may be taken to some of the principles that the author advocates regarding splinting in the early convalescent stage of poliomyelitis. Those portions of the book that consider plaster of paris technique, casts applied to specific parts of the body, and metal and leather braces contain no particularly new ideas. The book provides the orthopedic surgeon with a great deal of information. The illustrations are well chosen and of good quality. A final chapter on plastics and their uses in splints and braces considers a number of plastic materials, their nature, solvents, and methods of handling. This chapter is rather brief; however, it does provide valuable basic information on this not too generally known subject.

Cytology and Cell Physiology. Edited by Geoffrey H. Bourne. Second edition. Cloth. $10. Pp. 524, with illustrations. Oxford University Press, 114 5th Ave., New York 11; Amen House, Warwick Sq., London, E.C.4, 1951.

The first edition of this work appeared in 1941. Since then, many ingenious and fruitful new techniques, using electron microscopy, phase microscopy, microincineration, and radioactive isotopes have been developed. Authors and editor have cooperated to produce a coherent, readable summary of the present status of this science. There are 11 major divisions. The first, on cytological techniques, includes descriptions of new methods of microscopy. The second, on physical and physiochemical studies of cells, includes much new information on radiations. The remaining divisions take up the monolayer technique; the cell surface; the nucleus, chromosomes, and genes; mitochondria and the Golgi complex; microincineration and the inorganic constituents of cells; the enzyme systems of cells; pathological aspects of cytology, including fundamental contributions on cancer; histogenesis in tissue culture; and aspects of evolutionary cytology. The discussion of the gene is made concrete by new information on the actual dimensions of protein molecules. Noteworthy are the beautiful plates obtained by new methods of microscopy, the bibliography, the subject index, and the index of names. This book will be indispensable in any library or laboratory devoted to the basic medical sciences.

A Textbook of Pathology: Pathologic Anatomy in Relation to the Causes, Pathogenesis, and Clinical Manifestations of Disease. By Robert Allan Moore, Edward Mallinckrodt Professor of Pathology, Washington University School of Medicine, St. Louis. Second edition. Cloth. $12.50. Pp. 1048, with 501 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, 1951.

In the second edition of this book, published six years after the first, new chapters on disturbances in the metabolism of enzymes, general considerations of the infectious diseases, and diseases peculiar to the aged have been added. Some of the original chapters have been subdivided, rearranged, or expanded to include changing concepts of pathology and the appearance of new diseases. All this has been satisfactorily accomplished with conciseness and clarity of style. The originality of thought and presentation that characterized the first edition are preserved. Dr. Moore begins with a consideration of some of the principles of general pathology from the standpoint of the underlying metabolic, chemical, and physical disturbances. The section on special pathology is presented etiologically, insofar as possible. Infectious diseases are discussed according to the portal of entry into the body. Following this are the diseases caused by physical and chemical agents and those due to dietary deficiencies or occurring during pregnancy or at the extremes of life. Finally, diseases of unknown or obscure origin are described according to the organs in which they occur. The illustrations are, in general, good, although some of them, for technical reasons, do not succesfully carry out the intention of the author that "an illustration should expand the text." This is an excellent textbook of pathology, original in the presentation of subject matter, accurate as to facts, and clearly and interestingly written. Students and teachers will find pleasure and profit in its pages.

Let's Have Healthy Children. By Adelle Davis, A.B., M.S., Consulting Nutritionist. Cloth. $3. Pp. 314, with illustrations. Harcourt, Brace and Company, Inc., 383 Madison Ave., New York 17, 1951.

This book on prenatal care and the care of the baby has been written by a nutritionist who has had excellent training in this field. Obviously, good nutrition is important in pregnancy for the mother, for the unborn child, and for the successful care of the infant after it is born. However, there are other facets of prenatal care that the author neglects. The importance of good nutrition in pregnancy is discussed adequately. Balanced diets are charted, and there are many helpful hints on the preparation of an optimum diet. The advantages of breast feeding are described. The feeding of the infant and the many problems that this entails are fully discussed. There is too much emphasis on vitamin supplements throughout the book. The reader is given the erroneous impression that vitamins and minerals prevent or cure most of the disturbances of pregnancy. The book presents much useful data on nutrition, most of which is well authenticated. It should prove useful to students of nutrition and medical personnel who care for mothers and babies. However, the average mother will fare better if she obtains advice concerning nutrition during pregnancy and the care of the baby from her physician.

Lehrbuch der Pharmakologie im Rahmen einer allgemeinen Krankheitslehre für praktische Ärzte und Studierende. Von Dr. med. Fritz Eichholtz, Professor der Pharmakologie, Direktor des pharmakologischen Instituts der Universität Heidelberg, Heidelberg. Seventh edition. Cloth. 33.60 marks. Pp. 594, with 134 illustrations. Springer-Verlag, Reichpietschufer 20, Berlin W. 35 (West-Berlin); Neuenheimer Landstrasse 24, Heidelberg; Göttingen, 1951.

This is a useful book, organized differently from the majority of similar works in this country. The first part of the text is devoted to a general introduction, the metabolism of drugs, the hormones, and the pharmacology of individual tissues, of inflammation, of wound healing, of reaction to foreign tissues (anaphylaxis and allergy), and of immunity. The second part of the book deals with the actions of drugs on the physiological systems. This useful method of presentation was successfully undertaken by Meyer and Gottlieb and later by Gaddum. The book is intended for students preparing for examinations and as a reference for physiologists and clinicians. It is condensed, and, unfortunately, no mention is made of some of the new drugs used in the United States. Nonetheless, it is a useful book and should be used to supplement our modern English texts.

Handbook of Experimental Psychology. Edited by S. S. Stevens, Professor of Psychology, Harvard University, Cambridge, Wiley Publication in Psychology, Herbert S. Langfeld, advisory editor. Cloth. $15. Pp. 1436, with illustrations. John Wiley & Sons, Inc., 447 Fourth Ave., New York 16; Chapman & Hall, Ltd., 37-39 Essex St., Strand, London, W.C.2, 1951.

This handbook was created in response to a demand for a survey that would systematize, digest, and appraise the state of experimental psychology at the mid-century. The book is primarily for the use of graduate students, advanced scholars, and specialists, who may use it as a reference source and guide to material outside their special field of interest. It is a compilation of individual presentations by 34 outstanding contributors that covers new experimental data and theory in psychophysics, psychological mechanisms, growth and development, motivation, learning and adjustment, sensory processes, and problems of human performance. Each of the papers is fully documented, and a complete name and subject index is appended. The book should be particularly useful to specialists who do not have the time to fully cover the tremendous amount of new material that has been covered in journals in the field of psychology and related fields in recent years.

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QUERIES AND MINOR NOTES

INTOLERANCE TO IRON BY MOUTH

To the Editor:—*Please suggest an iron preparation for oral administration to a patient who has both gastric and intestinal irritation from the common orally administered iron preparations. She has used feosol® "ferrocol," ferrous gluconate, and enseals® (enteric-sealed tablets) of ferrous sulfate. In the event that iron cannot be tolerated orally, what form of dietary supplement or iron injection should be used?*

M.D., Georgia.

Answer.—This patient has had all the orally administered iron preparations ordinarily in use. On occasion tolerance to iron can be developed by the following procedure: the patient is given a small dose of iron (5 grains [0.32 gm.] in the form of ferrous sulfate, once a day); the dose is then slowly increased to 15 grains (0.97 gm.) a day. Gastrointestinal irritation also can be avoided by giving the iron preparation at the time of the ingestion of food. For patients who cannot tolerate oral preparations, intravenous forms of iron are available. One of the saccharated iron oxide preparations, also called high molecular iron preparations, may be used for this purpose. It is difficult to provide a diet really high in iron, and, ordinarily, the best one can do is to provide the patient with a diet that is well balanced in all respects.

GIARDIA LAMBLIA AND BALANTIDIUM COLI

To the Editor:—*During routine stool examinations for dysentery, our bacteriologist finds, in some cases, Giardia lamblia and occasionally Balantidium coli, especially among mentally defective patients. Kindly give me your opinion regarding their significance.*

M.D., Illinois.

Answer.—Giardia lamblia is a flagellate commonly found in the digestive tract. It apparently is commoner in the upper gastrointestinal tract and even in the biliary passages. Its presence is not associated with actual lesions, but not uncommonly a patient who harbors countless numbers of this parasite has some diarrhea. It is for this reason that treatment, preferably the use of quinacrine hydrochloride (atabrine®) is desirable. Balantidium coli is a parasite not uncommonly found in the intestine of domestic animals. When it occurs in the intestine of man in large numbers it may be associated with ulcerative lesions of the intestine.

DERMOGRAPHISM

To the Editor:—*A 22-year-old white man suffers from dermographia. There is no evidence of any associated allergy. This man is handicapped in his work because, whenever he performs any task that produces pressure on his hands, they swell and become tender. Is there any treatment for this condition?*

M.D., Texas.

Answer.—Dermographism is in effect a manifestation of factitious urticaria—a cholinergic or cholinogenic type of urticaria. Such cases should be investigated, as are other types of chronic urticaria, for sensitization to drugs, foods, foci of infection, metabolic disturbances, emotional stress, visceral tumors—in fact, abnormalities of any kind. Treatment consists essentially of the elimination and correction of the above factors. In addition, some physicians recommend the administration of antihistaminic agents, calcium salts, or hypertonic glucose solution intravenously, sedatives, ephedrine, desensitization with histamine, contrast baths, and elimination diets.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

PAIN RELIEF IN LABOR

To the Editor:—*A chief of a department of obstetrics reported that in a series of 211 deliveries all patients were given analgesia, and 147 were given anesthesia (thiopental [pentothal®] sodium in 63, trichloroethylene ["trilene"] in 73, chloroform in 10, and "kemithal" [5allyl-5-(Δ²-cyclohexenyl)-2-thiobarbituric acid] in 64 cases). There were 214 live births, 3 stillbirths, and 2 deaths after complicated deliveries. Two of the stillbirths occurred at the sixth month of pregnancy and the third occurred in a mother with treated syphilis. The chief of the department of pediatrics asked that analgesic or anethesic agents be prohibited in all deliveries attended in the Social Security Clinics. May I have your opinion on this problem.*

Colombia, South America.

Answer.—Pain relief in labor is used extensively in the United States, where more than 90% of births occur in hospitals. The experience in large institutions is that analgesia and anesthesia properly administered do not increase the hazard to the baby. Hingson, in an extensive study, demonstrated that uncontrolled tumultuous labors result in a higher neonatal mortality than labors intelligently conducted with the use of analgesia and anesthesia.

Analgesic drugs of all kinds interfere with the prompt establishment of extrauterine respiration on delivery, leading to anoxia. Inhalation anesthetics also increase the incidence of asphyxia of the newborn. In the average labor at or near term, these hazards are not great; however, in difficult deliveries, in the premature baby, and in the baby who has already suffered from anoxia because of some complication such as cord entanglement, partial abruptio placentae, or placenta previa, pain relief improperly timed or a general anesthetic may cause irreparable damage. Regional anethesia, such as saddle block, is ideal under these conditions. The results in the group of patients cited by the inquirer are good; however, it is far better to learn the limitations of one or two drugs for analgesia than to make use of many different substances.

SIZE OF MALE GENITALIA

To the Editor:—*Can the size of the male genitalia be influenced by prepuberty treatment?*

M.D., New York.

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—Prepuberal stimulations of the male genitalia do not influence the ultimate size of the organs. They merely hasten growth to the point that would be achieved spontaneously by natural development.

Answer.—It is assumed that this question refers primarily to the size of the penis. The size of this organ, like that of the female breast, is an inherited characteristic. The penis of the average man has a certain growth potential, beyond which an increase in its size does not appear to be possible. Prepuberal treatment with chorionic gonadotropin or androgen does not influence the final size of this organ unless a well-marked testicular deficiency is present. There is not necessarily any correlation between the size of the adult penis and testicular function.

TREATMENT OF ERYTHEMA PERSTANS

To the Editor:—*A 21-year-old, healthy teacher has had erythema perstans for 10 years. Aureomycin ointment, stock fungus vaccines, and innumerable treatments have been of no avail in treating her condition. She is a brunette. Is there any known, effective treatment?*

W. R. Roberts, M.D., Watseka, Ill.

Answer.—Erythema perstans, which is persistent erythema multiforme, is considered to be an allergic or toxic reaction to a variety of sensitizing agents, such as infections, drugs, or foods. Some physicians consider it a virus infection in which, as in

herpes simplex, the patient is a carrier, and the attacks result when skin resistance is lowered by infection or undue reaction to drugs or foods. Every effort, including obtaining of a painstaking history, a search for foci of infection, and allergy studies, should be made to determine the cause. The treatment, in the meantime, consists of a diet elimination regimen, the administration of ephedrine, calcium, or antihistaminic agents, and the application of soothing lotions or ointments.

LATENT BLOOD DYSCRASIA

To the Editor:—*A young white woman has for years had a purulent inflammation of the gingiva at the margin next to the teeth and, in addition, a bleeding tendency after the slightest touch; tooth brushing causes profuse bleeding of short duration. There seems to be a worsening during pregnancy. Recently there has been a local tissue growth near one tooth; this disappears after it is touched with silver nitrate, but recurs soon afterward. There is a strong tendency to dental caries, but, owing to frequent care, the teeth are in good condition. Causes such as tartar or shortage of vitamins have been eliminated. Results of general physical and blood examination are normal. Is there any effectual therapy?*

M.D., Holland.

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—One is led to suspect from the careful history and clinical description that a systemic background of blood dyscrasia might be latent and might become obvious later. Apparently pregnancy is an aggravating factor. On the other hand, in spite of the apparent care taken in restoring the carious teeth and in scaling the teeth, very careful checking for local irritation is indicated. Improper contour of dental restorations and improperly finished gingival margins of fillings may produce continuous and chronic gingivitis. Thorough local scaling and prophylaxis have cured severe chronic inflammation of the gingiva in many cases.

Answer.—Marked and persistent bleeding of the gingival tissue is associated with chronic gingivitis and chronic Vincent's infection. The chronic gingivitis is frequently due to deposits of calculus in the gingival sulcus and may be influenced by traumatic occlusion, food impaction, and, in some cases, altered gonadal hormonal activity. Exacerbations associated with pregnancy are not unusual. In some cases of gingivitis associated with pregnancy, granuloma pyogenicum occurs on the gingiva as small vascular tumors.

Acute Vincent's infection becomes chronic when the condition is not treated or is improperly treated. Marked gingival hemorrhage is frequently a symptom. The gingival margin is necrotic and gives the appearance of accumulated exudate. This is likewise associated with the presence of subgingival calculus and traumatic occlusion.

Thorough subgingival scaling and polishing, intensive brushing, and adjustment of occlusion usually result in control if there is no underlying periodontitis.

TREATMENT OF STERILE PLEURAL EFFUSION

To the Editor:—*Given a pleural effusion, from which no organism can be recovered, in an adult otherwise in good health, what is the treatment? If* p*-aminosalicylic acid and streptomycin are indicated, for how long and in what dosage should they be given?*

M.D., New York.

Answer.—Assuming there is no evidence of mediastinal lymphoma, metastatic malignancy, or heart disease, it is a reasonable assumption that the pleural effusion is tuberculous in origin. So long as definite organisms have not been recovered from the pleural fluid, sputum, or gastric washings, and, as long as the pleural fluid remains serous, repeated aspiration as necessary, is acceptable treatment. On the assumption that the process is tuberculous, *p*-aminosalicylic acid, 2 gm. every two hours for five doses daily, may be used. There is considerable difference of opinion as to the dosage of streptomycin in a case such as this. From 0.5 gm. every other day to 1 gm. per day is the range employed by various clinicians. Duration of drug therapy will have to be guided by the patient's clinical course.

DEVIATED SEPTUM IN A CHILD

To the Editor:—*A boy, 9 years old, has a smooth deflection of the nasal septum and a low grade chronic infection of the antrum. There is 95% blocking. This patient is too young to consider submucous resection. Is there any other procedure that might be used? I have in mind a fracture of the septum toward the midline. Is this feasible?*

M.D., Florida.

Answer.—The presence of a pronounced deflection of the nasal septum in a 9-year-old child does not necessarily constitute an indication for immediate correction. The problem should not be thought of in terms of correcting an anatomic deformity, nor should the age of the patient be a deciding factor. Unless the deflected septum is accompanied by troublesome nasosinal and systemic symptoms, surgical intervention should not be considered until a regimen of conservative medical therapy has been found ineffective. Even moderate improvement should encourage the continuation of such a program. Submucous resection of the septum should, however, be considered in the event of disturbed respiration, inadequate paranasal sinus ventilation and drainage, and, in the case of this child, the persistence of the chronic maxillary sinus infection, despite adequate medical attention over a period of months. Fracture of the septum toward the midline is inadvisable.

PITYRIASIS RUBRA PILARIS

To the Editor:—*A patient with pityriasis rubra pilaris has been treated with high doses of vitamin A, x-ray therapy, and injections of vitamin B plus liver, with no improvement. Itching and nervous tension have been the most troublesome symptoms. What is her prognosis? Is there any other type of therapy? Will this develop into a generalized exfoliative dermatitis?*

Herbert F. Cowgill, M.D., Wadsworth, Ohio.

Answer.—There are some cases in which pityriasis rubra pilaris shows improvement and even disappears after treatment with vitamin A administered orally in large doses. Others respond to treatment only when the vitamin A is administered parenterally, and still others respond better to treatment with butter ingested in large quantities. Experimental work with the steroids, cortisone and corticotropin (ACTH) indicate that, initially at any rate, the concomitant administration of these drugs tends to enhance the beneficial effect of vitamin A. Only a few patients have received this treatment to date.

The condition in a number of cases does not respond to treatment of any kind. Many patients experience temporary remissions, but the tendency is for the disease to go on and on. There is little reason to expect the development of exfoliative dermatitis unless the topical measures used should produce irritation.

DEXTRO-AMPHETAMINE SULFATE AND ARTERIOSCLEROSIS

To the Editor:—*What effect would 5 mg. of* d*-amphetamine (dexedrine®) sulfate daily have on a 67-year-old patient with generalized arteriosclerosis with mild hypertension—150 systolic, 100 diastolic, and at times 175/110?*

Louis Guggenheim, M.D., Los Angeles, Calif.

Answer.—As a rule, *d*-amphetamine (dexedrine®) sulfate in doses of 5 mg. will not significantly elevate either the systolic or the diastolic blood pressure. As far as is known, it has no specific effect on arteriosclerosis. It is often stated that *d*-amphetamine sulfate should be used cautiously in the treatment of patients who have hypertension and coronary disease or those who have had episodes of cerebral vascular disease. In such a case as described, this preparation should not be used merely to suppress the appetite for purposes of weight reduction or to make the patient feel a little better. On the other hand, if it is judged to be urgent and necessary to use this preparation for this patient, it would perhaps be best to test its effect on the blood pressure before allowing the patient to take it regularly. If the diastolic blood pressure is found not to be elevated more than 10 mm., it should be safe to use this agent, always assuming that it is very important to do so.